Release 6.4.6

The Manual

tightrope media systems

©Tightrope Media Systems
Documentation on how to use and administrate Carousel
Version 6.4.6 Build 61

Printed June 4, 2014

Contents

I Introduction and Tour 13

1 Introduction 15
- 1.1 Welcome to Carousel! . . . 15
- 1.2 About Tightrope . . . 15
- 1.3 About This Documentation . . . 17
  - 1.3.1 Turnkey and Software Only Versions . . . 17
  - 1.3.2 Carousel Editions and Options . . . 17
- 1.4 Default Passwords . . . 18
- 1.5 Upgrading From Older Versions . . . 18

2 The Essentials of Carousel 19
- 2.1 A Quick Note To Carousel Installers . . . 19
- 2.2 A Quick Note to Carousel's Users and Administrators . . . 19
- 2.3 What Does Carousel Do? . . . 19
- 2.4 Displays, Channels, Zones, Bulletins and Media . . . 20
  - 2.4.1 Displays . . . 20
  - 2.4.2 Carousel Players: Adding More Outputs . . . 20
  - 2.4.3 Zones and Channels . . . 22
  - 2.4.4 Zones on Multiple Channels . . . 23
  - 2.4.5 Bulletins . . . 24
  - 2.4.6 Alert and Repeating Bulletins: Interrupting a Zone's Bulletins 24
  - 2.4.7 Full-Screen Alert Zones: Interrupting All of a Channel's Bulletins . . . 24
  - 2.4.8 Crawl Zones . . . 25
- 2.5 Pro and Enterprise Editions: Added Flexibility . . . 25
  - 2.5.1 Channel Licenses, Display Engines and Players . . . 25
  - 2.5.2 Categorizing Zones with Tagging . . . 26

II Planning and Setup 29

3 The Setup Plan 31
- 3.1 Designing Your Channel . . . 31
  - 3.1.1 Planning Tips for Your Zones . . . 32

4 Carousel's Video Capabilities 35
- 4.1 Carousel Player Software Comparisons . . . 35
- 4.2 Video Output Resolution . . . 35
- 4.3 Video File Playback Performance and Resolutions . . . 36
- 4.4 Crawl Performance . . . 36

5 Hardware Setup **39**
5.1 Hardware Installation . . . 39
5.1.1 Installing in a Rack . . . 39
5.1.2 Connecting the Video Outputs . . . 43
5.1.3 Power for your Carousel Servers . . . 43
5.1.4 Powering Up the Server . . . 45
5.2 System Setup . . . 45
5.2.1 Configuring the Network Settings . . . 45
5.2.2 Setting the System's Time . . . 47
5.2.3 Installing Carousel Players . . . 48
5.2.4 Language Support: Changing The System Locale . . . 48

6 Introduction to Carousel's User Interface **51**
6.1 Logging Into Carousel . . . 51
6.2 The Main Menu . . . 51
6.3 The Status Bar . . . 53
6.4 Quick Links . . . 54
6.4.1 About Menu . . . 54
6.5 Selecting Zones . . . 54
6.5.1 Zones with the Pop-Down Menu . . . 55
6.5.2 Zones with the Tag Selector . . . 55
6.6 The Media Picker . . . 56
6.6.1 Selecting Media With Tags . . . 57
6.7 Common Icons and Their Purpose . . . 58

7 Setup Basics: Step-By-Step **59**
7.1 Configuration Menu . . . 59
7.2 Create Your Zones . . . 59
7.2.1 The Zone Properties Form . . . 60
7.3 Define Your Channels . . . 61
7.3.1 The Channel Setup Form . . . 62
7.3.2 The Channel Layout Form . . . 64
7.3.3 The Crawl Properties Form . . . 65
7.3.4 The Date and Time Properties Form . . . 66
7.3.5 The Background Audio Form . . . 68
7.3.6 Adding Background Audio to Carousel . . . 68
7.3.7 Adding a Seamless Background . . . 69
7.4 Previewing Your Channel . . . 69
7.5 Where We Are At . . . 70

8 Configuring Players **71**
8.1 Closing the Display Engine . . . 71
8.2 Configuring the Display Engine . . . 72
8.2.1 Carousel Server Settings . . . 72
8.2.2 Time Settings . . . 74
8.2.3 Display Settings . . . 74
8.2.4 Live Video Input . . . 75
8.3 Monitoring Your Players . . . 75
8.3.1 Player Status . . . 75
8.3.2 Micro Player Status . . . 77
8.3.3 Player Alerts . . . 77
8.4 Cached Mode . . . 78

8.5 Loading Zones . . . 78
8.6 Not Licensed Status . . . 79
8.7 TV Output - 300R . . . 79
8.7.1 Enabling the TV Output . . . 80
8.7.2 Adjusting the TV Output Settings . . . 80
8.7.3 But My Video Is Black and White! . . . 82
8.8 TV Output - 310R . . . 82
8.8.1 Physical Configuration . . . 82
8.8.2 Software Configuration . . . 82
8.9 Adjusting the Video Resolution . . . 83
8.9.1 Standard Resolution Adjustments . . . 83
8.9.2 Custom Monitor Adjustments . . . 84
8.9.3 Setting up a 9x16 Display . . . 87

9 Adding Content **89**
9.1 Zones and Aspect Ratios . . . 89
9.2 Uploading Backgrounds and Templates . . . 90

10 The Zone Settings Menu **91**
10.1 The Network Tab . . . 91
10.1.1 Email Settings . . . 91
10.1.2 Other Outputs . . . 92
10.2 Lists . . . 92
10.3 Display Engine . . . 92
10.3.1 Bulletin Pacing . . . 92
10.3.2 Default Transition . . . 92
10.3.3 Bumper Graphic . . . 93

11 The Configuration Menu: The Missing Pieces **95**
11.1 Synchronizing Zones . . . 95
11.2 System Configuration Menu . . . 96
11.2.1 Zone Selection Style . . . 96
11.2.2 Administrator Email Setup . . . 96
11.2.3 Zone Tags . . . 97
11.2.4 External Data Source Authentication . . . 97
11.2.5 Proxy Configuration . . . 98
11.2.6 System Information . . . 98

12 Users and Carousel **99**
12.1 Permissions . . . 99
12.2 Multiple People, Same Account . . . 99
12.3 Users and Carousel Solo . . . 100
12.4 Setting Up The Approver . . . 100

III Making Bulletins **101**

13 Making Bulletins **103**
13.1 Selecting a Template . . . 103
13.2 Editing and Creating Bulletins . . . 104
13.2.1 Adding Style using HTML Tags . . . 105
13.2.2 Checking your spelling . . . 105

13.2.3 Editing the Template of the Bulletin . . . 105
13.3 Scheduling a Bulletin . . . 107
13.4 Bulletin Properties . . . 108
13.4.1 Bulletin Dwell Time, aka Timing . . . 108
13.4.2 Tracking Bulletin Impressions . . . 108
13.4.3 Bulletin Transitions . . . 108
13.4.4 Sound File . . . 108
13.4.5 Bulletin Description . . . 110
13.4.6 Bulletin Tags . . . 110
13.5 Adding a Bulletin to a Group . . . 111
13.6 Setting the Bulletin Type: Active or Repeating . . . 112
13.7 Duplicating a Bulletin on Multiple Zones . . . 112
13.7.1 Selecting Zones with the Zone Selector . . . 112
13.8 Confirmation . . . 114

14 Making Crawls **115**
14.1 Multiple Crawls at the Same Time . . . 115
14.2 Choosing a Crawl Zone . . . 115
14.3 Creating a Crawl . . . 116
14.4 Scheduling and Properties . . . 116

15 Alert and Full Alert Bulletins **117**
15.1 Zone Based Alerts . . . 117
15.2 Full Screen Alerts . . . 117

16 Uploading Bulletins **119**
16.1 Uploading Video and Pictures . . . 119
16.1.1 Picture Formats . . . 119
16.1.2 Video Formats . . . 119
16.1.3 Notes on Uploaded Pictures and Video . . . 120
16.2 Uploading Flash . . . 121
16.2.1 The Flash Properties Form . . . 121
16.2.2 Flash Animation Timing . . . 121
16.2.3 Audio and Flash . . . 121
16.2.4 Notes on Flash in Carousel . . . 121
16.3 Uploading PowerPoint . . . 124
16.4 Uploading Bulletin Packages . . . 124
16.4.1 Anatomy of a Bulletin Package File . . . 124
16.4.2 Uploading a Bulletin Package File . . . 124

17 Dynamic Bulletins **125**
17.1 The Clock Bulletins . . . 125
17.1.1 Analog Clock . . . 126
17.1.2 Digital Clock . . . 126
17.1.3 Countdown Timer . . . 127
17.2 The Weather Bulletins . . . 129
17.2.1 Select Location and Caption . . . 129
17.2.2 Changing the Backgrounds . . . 130
17.2.3 Editing the Weather's Template . . . 130
17.3 The Weather Crawls . . . 133
17.4 Cable Display Bulletins . . . 134
17.4.1 Setting Cable Display Bulletin Properties . . . 137

17.4.2 Editing the Cable Display Bulletin . . . 138
17.4.3 Scheduling and Standard Properties . . . 140
17.5 The RSS Bulletins . . . 140
17.5.1 Creating an RSS Bulletin . . . 141
17.5.2 Scheduling RSS . . . 143
17.5.3 Troubleshooting RSS . . . 144
17.6 The RSS Crawls . . . 146
17.7 Twitter Bulletins . . . 147
17.8 Facebook Bulletins . . . 148
17.9 The Event Schedule Bulletins . . . 150
17.9.1 Creating an EDS Bulletin . . . 150
17.9.2 Setting Up Dean Evans EMS or Ad Astra for EDS . . . 150
17.9.3 Editing EMS and Ad Astra Properties . . . 151
17.9.4 Setting Up Resource25 for EDS . . . 152
17.9.5 Setting Up Exchange Server 2007 SP1 and 2010 for EDS . 155
17.9.6 Editing EDS Properties . . . 155
17.9.7 Editing an EDS Bulletin . . . 157
17.10 EDS Bulletin Scheduling . . . 158
17.11 Scheduling EDS Within Carousel . . . 158
17.12 The Live Video Input Bulletins . . . 159
17.13 Interactive Bulletins . . . 161
17.14 Dynamic Bulletin Errors . . . 162

IV Managing and Extras 165

18 Managing Bulletins 167
18.1 Bulletin Lists . . . 167
18.1.1 Bulletins . . . 168
18.1.2 Filtering By Tags . . . 169
18.1.3 Groups . . . 170
18.1.4 Moving Bulletins or Groups Within a List . . . 170
18.1.5 Copying and Moving Bulletins . . . 171
18.2 My Bulletins . . . 173
18.2.1 My Bulletins as the Administrator . . . 173
18.3 Approving Bulletins . . . 173
18.4 Housekeeping . . . 174
18.5 Reporting . . . 175
18.5.1 Filter by bulletin type . . . 175
18.5.2 Filter by bulletin status . . . 176
18.5.3 Filter by bulletin tags . . . 176
18.5.4 Export CVS Report . . . 176
18.6 Slide Show . . . 177

19 Managing Media 179
19.1 My and Zone Tabs . . . 180
19.2 File Formats . . . 180
19.2.1 File Compatibility . . . 181
19.3 Logos and Irregularly Shaped Pictures . . . 181
19.4 Aspect Ratios . . . 181
19.5 Media Asset Lists . . . 181
19.5.1 Items . . . 182

19.5.2 Form Buttons . . . 182
19.5.3 Copying Media Assets . . . 184
19.6 Media Asset Properties . . . 185
19.7 The Template Editor . . . 186
19.7.1 Editing a Bulletin's Template vs. Permanently Editing a Template . . . 186
19.7.2 Basics of the Template Editor . . . 187
19.7.3 Walking Through the Template Editor Form . . . 188
19.8 Media Tags . . . 201
19.9 Creating a Seamless Background for a Multi-Zoned Channel . . . 201
19.10 Adding Media Packages . . . 203
19.11 Creating Media Packages . . . 204

20 Extras **205**
20.1 Screensaver . . . 205
20.2 RSS Output . . . 206
20.3 Public Web Interface . . . 206

21 Remote Data Adaptor **209**
21.1 Communications . . . 209
21.2 Workflow of RDA . . . 210
21.3 Elements of CarouselCommand . . . 211
21.4 Elements of CarouselResponse . . . 212
21.5 Schema and Examples . . . 213
21.5.1 CarouselRemoteCommand XSD . . . 213
21.5.2 Command Examples . . . 213
21.5.3 Response Examples . . . 217
21.6 RDA Schema . . . 218

22 Clone Tool **229**
22.1 Using the Clone Tool . . . 229
22.1.1 Exporting a Channel . . . 229
22.1.2 Importing a Channel . . . 231
22.2 Advanced Settings . . . 233
22.2.1 Remote SQL servers . . . 233
22.2.2 Remote media storage . . . 234
22.2.3 Command line arguments . . . 234

V Appendix **235**

A Installer's Checklist **237**
A.1 Carousel Checklist . . . 238
A.1.1 Preperation . . . 238
A.1.2 Setup . . . 239
A.1.3 Verify Display Quality and Content . . . 240
A.1.4 Verify Carousel Communication . . . 240
A.1.5 Clean Up Testing . . . 241
A.1.6 Communicate With the Customer . . . 241

B Carousel Menu Tree **243**
B.1 Carousel Menu Structure . . . 243

C Web Page Snapshots **247**

D Sample Carousel Templates **251**

E Limited Template Editor **255**
E.1 The Preview Window . . . 258

F Custom Time Format Chart **261**
F.1 Examples . . . 262

G PowerPoint: How To Import Slides **263**
G.1 Saving PowerPoint Presentations As JPEG or PNG files . . . 263
G.2 Making the Zip File . . . 264
G.3 Importing the Slides Into Carousel . . . 264

H Carousel Monitor Control **267**
H.1 Where Do I Find Carousel Monitor Control? . . . 267
H.2 Installing the Application . . . 267
H.3 System Tray Menu . . . 267
H.4 Edit Configuration... . . . 268
H.5 Example Strings . . . 269
H.6 Edit Schedule... . . . 269
H.7 Allowing Network Control . . . 269

I Live TV Input (TVI) Devices **271**
I.1 Hauppauge Hardware . . . 271
I.1.1 Steps to setup Hauppauge . . . 271
I.2 TVOne Hardware . . . 273
I.2.1 Steps to setup TVOne T1-C2-750 . . . 274
I.3 AVerMedia Hardware . . . 274
I.3.1 Steps to setup AVerMedia in Carousel . . . 275
I.4 Contemporary Research and AVerMedia Hardware . . . 275
I.4.1 Steps to setup 232-ATSC+ with AVerMedia in Carousel . . . 275

J Enterprise Software Installation **277**
J.1 Windows 2008 Installation . . . 277
J.1.1 Installing and Configuring IIS Components and Services . . . 277
J.1.2 Installing .NET Framework . . . 278
J.1.3 Downloading SQL Server Express and SQL Server Management Studio Express . . . 279
J.1.4 Installing SQL Server Express . . . 280
J.1.5 Installing SQL Server Management Studio Express . . . 284
J.1.6 Enabling Named Pipes for SQL Server Express . . . 285
J.1.7 Setting up ASP.NET to run in Classic Mode . . . 285
J.1.8 Installing Tightrope Software . . . 286
J.1.9 Adding User Permissions to the Carousel and FrontDoor Databases . . . 286
J.1.10 Changing the Application Pool for Installed IIS Applications 287
J.1.11 Final Configuration and System Check . . . 289
J.2 Carousel Player Software Installation . . . 290
J.3 Advanced Enterprise Installations: Separating SQL and Media Storage . . . 290
J.3.1 Web Server Overview . . . 290

J.3.2 Database Requirements . . . 291
J.3.3 Install FrontDoor and Carousel Framework on the web server. 291
J.3.4 Installing the database on a database server. . . . 291
J.3.5 Configuring the database login and the web server. . . . 292
J.3.6 Moving the media directory to another server. . . . 292
J.4 Enterprise Troubleshooting . . . 298
J.4.1 Could Not Find Stored Procedure . . . 298
J.4.2 WebUI Can't Connect To Database . . . 298

K Common Alert Protocol (CAP) 301
K.1 Communications . . . 301
K.2 Workflow of CAP . . . 301

L Troubleshooting 303
L.1 Carousel Bumper Page . . . 303
L.2 No Zones Defined . . . 303
L.3 Not Licensed. 304
L.4 DisplayEngine Hidden Configuration Options. 304

M A Not-So-Short Introduction to Networking 305
M.1 The Basics: What is a Network? . . . 305
M.1.1 IP Address . . . 306
M.1.2 Subnet Mask . . . 307
M.1.3 Network Router . . . 307
M.1.4 Domain Name System (DNS) Address . . . 308
M.1.5 Summary of Basic Network Concepts . . . 309
M.2 Dynamic Addresses and DHCP . . . 310
M.3 TCP and UDP Glossed Over . . . 310
M.4 Network Ports . . . 311
M.5 Private and Public IP Addresses . . . 312
M.6 Network Address Translation . . . 313
M.7 Firewalls . . . 315
M.7.1 Dire Warning About Firewalls . . . 316
M.8 Port Forwarding . . . 316
M.9 Virtual Private Network . . . 316
M.10 How Do I Access Cablecast or Carousel From Home? . . . 317
M.10.1 Option 1: Hang It Out On the Internet . . . 317
M.10.2 Option 2: Use Port Forwarding . . . 317
M.10.3 Option 3: Use VPN . . . 318
M.10.4 The "Forget the IT Department" Option . . . 318
M.11 Avoiding The Tyranny of Cable Modem Providers . . . 319
M.11.1 Dynamic DNS . . . 319
M.11.2 Change Your Port Number . . . 319
M.12 Time Synchronization, UDP and NAT . . . 321
M.13 Summary . . . 321

N Release History 323
N.1 Carousel 6.4.0 Release Notes . . . 323
N.2 Carousel 6.4.1 Release Notes . . . 323
N.3 Carousel 6.4.4 Release Notes . . . 324
N.4 Carousel 6.4.5 Release Notes . . . 324
N.5 Carousel 6.4.6 Release Notes . . . 324

List of Figures 327

I. Introduction and Tour

"I was born not knowing and have had only a little time to change that here and there."

—Richard Feynman

1 Introduction

1.1 Welcome to Carousel!

Thank you for purchasing a Carousel system from Tightrope Media Systems! We have worked hard to make your new system versatile, easy to use and reliable.

Carousel is a family of web-centric digital signage products for common area display networks. Carousel is used every day in schools, businesses, banks, hospitals, religious centers and on television channels. The system displays a series of bulletins in an ordered sequence and on a schedule specified by the bulletins creator. These bulletins are displayed on screens throughout a building or between programs on a television channel.

Tightrope's mission is to design Carousel as a zero-training, zero-administration system. Carousel is *zero-training* because it is designed to be easy enough for anyone to create a bulletin without prior training. It is *zero-administration* because it does not require intervention during normal operation, unless a new bulletin arrives and requires approval[1].

Carousel has a few components that make up the system. The web foundation that the software is built upon is called FrontDoor. All of Tightrope's products utilize this common platform in an effort to provide you with a reliable, easy to use and instantly familiar interface to our system. FrontDoor is what manages the user logins and rights on the system's web interface. For further information you'll want to read *FrontDoor: The Manual*.

It is possible that your Carousel server has Tightrope's Cablecast television automation system. If this is the case, you will want to read the *Cablecast: The Manual* for further information. Using the Cable Display plug-in, described in section 17.4 on page 134, Carousel works with Cablecast in several important ways. You will not want to miss these features!

1.2 About Tightrope

Tightrope Media Systems is a manufacturer of broadcast and digital signage systems. We are the best at developing whole product solutions that deliver a tailored experience and fantastic utility for our customers.

For more information on Tightrope Media Systems, please visit our web site: www.trms.com

Email us at: sales@trms.com

[1] Even here, Carousel automatically emails the administrator when the new bulletin arrives, thus negating the need to check Carousel for new bulletins.

Our Address is:

Tightrope Media Systems
800 Transfer Road, Suite 1B
Saint Paul, Minnesota 55114

For customer service, please contact your dealer or Tightrope Media Systems directly:

Email : support@trms.com

Support Request Form : An online support request form is at www.trms.com/support.

Online Documentation : www.trms.com/support/documentation

Training Videos : www.trms.com/support/training

Blogs : blog.trms.com

Community Forum : http://getsatisfaction.com/trms

Phone : (866) 866-4118 / (612) 866-4118

The fastest way to get support is through email or the online support form. The community forum is a great place to share tips and tricks, too.

Throughout this guide, the following conventions will be used:

This is a note. Notes are used to call attention to special information that may be helpful to keep in mind.

This is a tip. Tips show unique ways to use the software, and tricks that have been picked up by other users.

This is a warning. Warnings call attention to actions that may result in unforeseen consequences, such as actions that delete large amounts of data or configurations that might have network security implications.

This is a margin note.

If we want to highlight a section of the text that is critical to a particular topic, we'll insert a margin note, like the one you see next to this paragraph. Margin notes might also include small pictures of the user interface, when a figure would be too cumbersome.

! →

If we need to call special attention to something that is critical, you might see the symbol that you now see to the left.

When the text references a particular menu item, field or label within the software, that text will appear as follows:

Example: Click on the **Record** button.

When we talk about or reference a menu in the software, we use a special style and reference it in the margin. When we reference menus, we leave out the main menu and we separate each menu with a colon (":").

View: Preferences. . . : Channels

Example: To change your channels' names, go to *View: Preferences. . . : Channels*.

When the text references user input, "`this format`" will appear.

Example: Enter "`1234`" into the number field.

When quotes are used to display user input, do not include them in your input unless specifically told to do so.

You'll notice that we've used a couple of 'Examples:' in this section. You will see those throughout the text. They highlight. . . examples.

Pro/Enterprise Editions: We also use the label to the left to highlight information that is applicable only to Carousel Pro and Carousel Enterprise.

1.3 About This Documentation

This is the Carousel Guide and is intended for the installer, administrator and user of your Carousel system. This includes:

- Those responsible for installing and configuring Carousel for the first time. We cover these topics in part II on page 29, *Planning and Setup*.
- Those who will adjust Carousel's settings, approve other's pages and otherwise have greater control over the system. These topics are covered in part IV on page 165, *Managing and Extras*.
- Those who will use Carousel on a day to day basis. Check out part III on page 101, *Making Bulletins* for information on these topics.

1.3.1 Turnkey and Software Only Versions

Some systems come as turnkey devices–computers and servers with Carousel preinstalled. Others come as a software only solution. We discuss the installation of Carousel Enterprise, the server software, in appendix J on page 277, *Enterprise Software Installation*. The Software Display Engine installation is covered in chapter 8 on page 71, *Configuring Players*.

Physically installing your Carousel server into your head end is covered in the chapter **??** on page ??, and chapter 5 on page 39, *Hardware Setup*.

1.3.2 Carousel Editions and Options

Carousel is divided into two product families: *Server* and *Solo*.

Products in the Carousel Server family operate as the center of a digital signage framework. They manage multiple channels of information from a single web interface and can accommodate multiple users with varying levels of access. Currently there are three products in the server family: *Carousel Server*, *Carousel Pro Server* and *Carousel Enterprise Server*. Carousel servers work with external players to provide their channels, although the standard Carousel Server includes one channel.

Products in the Carousel *Solo* family, include the *Solo 220* and *Solo 300R*. These machines operate as either stand-alone digital signage systems or as *players* within a system controlled by one of the servers in the Carousel Server product family. In stand-alone mode, the Solos include everything required for a single channel of digital signage—just add monitors and cabling. However, Solos only provide one administrator account and one user account and can not communicate with other Carousel Solos for message sharing.

To learn more about multi-channel Carousel systems, see section 2.4.2 on page 20.

1.4 Default Passwords

When your Carousel server shipped from our warehouse, the following usernames and passwords were used.

Windows Login : Username: Administrator
Password: trms

FrontDoor Login : Username: Admin
Password: trms

We recommend changing these immediately.

1.5 Upgrading From Older Versions

If you are an experienced Carousel user, then welcome to this release! Release announcements are made on our forums located at http://forums.trms.com.

2 The Essentials of Carousel

In this essential chapter, hence its name, we'll cover Carousel vocabulary. After reading it, the software's mysteries will be yours and its use and setup will make much more sense. It's required reading if you are in any way involved in Carousel's installation, administration or daily use.

2.1 A Quick Note To Carousel Installers

If you are installing Carousel, either for someone in your organization who is going to use it or as a systems integrator, you should probably start this guide by reading appendix A on page 237, *Installer's Checklist*.

2.2 A Quick Note to Carousel's Users and Administrators

If you are a user of Carousel, most of the information in part II on page 29, *Planning and Setup* will be lost upon you. You'll want to focus most of your attention on part III on page 101, *Making Bulletins* and part IV on page 165, *Managing and Extras*. We cover making bulletins and managing the content within Carousel in these parts of the manual.

If you manage the user accounts for Carousel, then be sure that you check out *FrontDoor: The Manual*. That is where we cover *FrontDoor's* features, including adding users to Carousel and changing their permission levels.

2.3 What Does Carousel Do?

Carousel is designed to manage and show bulletins, which are short graphical messages, on common area displays or on your television channel. In order to accommodate the widest variety of installations, Tightrope developed Carousel in such a way that it can be configured to show bulletins in different places on different equipment in different sizes on different displays with different aspect ratios — variety requires a bit of explanation. :)

With that said, *your* need to read every bit of the information within this chapter will depend upon whether or not you own Carousel Solo, Carousel Server, or one of its bigger siblings: Carousel Pro and Carousel Enterprise. Carousel Server and Carousel Solo have relatively simple installation scenarios while the Pro and Enterprise editions include components that increase the number of possibilities. We will call out the appropriate edition where the distinction matters.

If you would like to follow along in a live Carousel system while you read this manual, visit our demo website located at http://demo.trms.com and login using our predefined administrator account. Pick one of the logins that most closely matches your organization.

2.4 Displays, Channels, Zones, Bulletins and Media

We start by examining the most fundamental concepts of Carousel and how it helps you to organize the content of your display. These building blocks include: *displays, channels, zones, bulletins and media.*

We'll take each, in order, and explain how they are interrelated. By carefully reading this section, you will have a good foundation with which to continue. In fact, you'll see more than a few warnings in this manual that implore you to understand the content that you'll be reading here.

2.4.1 Displays

Your audience will see your system's bulletins on, what we will generically call, a *display*. Displays include televisions, LCD panels, plasmas or anything else that can display the video that the Carousel system can output.

All Carousel systems output a VGA and DVI signal. In addition, Carousel Servers, the Carousel Solo 300R has a composite video output. The Carousel Solo 230 has an HDMI output with embedded audio.

Since displays come in a variety of shapes and sizes, we must describe them to Carousel before we use them. For systems where the target is a standard definition television, this is simple: 800 pixels across by 600 pixels across (hereinafter written as 800 *x* 600). For other displays, the number of choices increase dramatically, but usually they are in a 16 *x* 9, 9x16[1] aspect ratio.

Whatever the display, it is very common to have a large number of them plugged into the output of a single computer in a Carousel system. The video is usually distributed via RF modulator or by a balun system that delivers high-resolution video through CAT-5 cabling[2]. No matter, there is no limit to the number of displays that may be connected to a single output of Carousel.

2.4.2 Carousel Players: Adding More Outputs

But what happens when you want to display something different on two sets of displays? What happens if you're operating two television channels and you need different bulletins on each? What happens if you want one information channel in the lobby and another in the lunch room? Do you buy a second Carousel system? The answer depends on your goals.

Carousel comes in two different flavors: The Carousel Solo series and the Carousel Server series. Each can stand on their own as a digital signage system, with some differences. The principle difference being that with Carousel Servers you can add one or more Carousel Players as players, managing them from the server's web interface. If you started with a Carousel Solo and want to expand to multiple channels, then it would be time to buy a Carousel system from Tightrope's server line[3]. Carousel Solos may be used as players by simply pointing the Solo's Display

[1] Often, especially with LCD panels, you'll replace the 9 with a 10 because computer manufactures liked 768 pixels vertically instead of 720 or 1200 instead of 1080.

[2] Sometimes these baluns are powered so that they can go great distances. Powered baluns are called *active baluns*.

[3] With Carousel Server you get an additional output. With Carousel Pro or Enterprise, a Carousel Solo is needed for every channel of output.

tightrope
Tightrope Media Systems introduces Carousel 5.0, the latest version of their award-winning digital signage system.
3:30 pm Healthier Living :: Presented by Medica
Room A101
3:30 pm Tightrope Media Systems :: Digital Signage
Room B102
4:00 pm Mothballing your Battleship
Emerald Room
carousel v5
data from the weather, RSS information or a
weather
Snowing
Humidity: 100%
Wind: North at 13mph
Tightrope Media Systems introduces Carousel 5.0, the latest version of their award-winning digital signage system.
Carousel Release 5 can run a crawl using data from th

FIGURE 2.1: Monitors can be in 16*x*9, 9*x*16 and 4*x*3 aspect ratios.

Engine, which is the software that makes the pictures on the display, at your new server.

You can, of course, buy a separate Carousel system and operate it independently, but as we'll see in later sections, this is a limiting proposition.

There are other options for adding more channels to a Carousel system, if you have Carousel Pro or Enterprise. Read section 2.5 on page 25 after you've completed this section.

With the standard Carousel Server, you can add up to two Carousel Players, for a total of three unique channels. With Carousel Pro, the limit is 200 channels. The number of channels for a Carousel Enterprise system is determined by your server's hardware.

The bottom line is: Carousel Solo systems act as stand-alone digital signage systems. When you want to create a system of signage channels where content can be shared and users can edit content from a single web interface, you need a Carousel server and more than one player. Carousel Solos can act as players in these multi-channel

systems but Carousel Players are a bit cheaper and are what you would purchase if you're not upgrading from a Solo system to a multi-channel system.

To get a clearer picture of how products in the Carousel line differ, see the chapter ?? on page ??, .

2.4.3 Zones and Channels

Let us look at a single display for a moment. It's easy to imagine what our Carousel's bulletins will look like—each rotating through and looping around to the beginning once they've all had a turn. Imagine the ability to display weather data, standard bulletins and meeting schedule information simultaneously. Since Carousel Version 5, we introduced zones, which provide you with the ability to break up the screen into several areas of unique information as seen in figure 2.2.

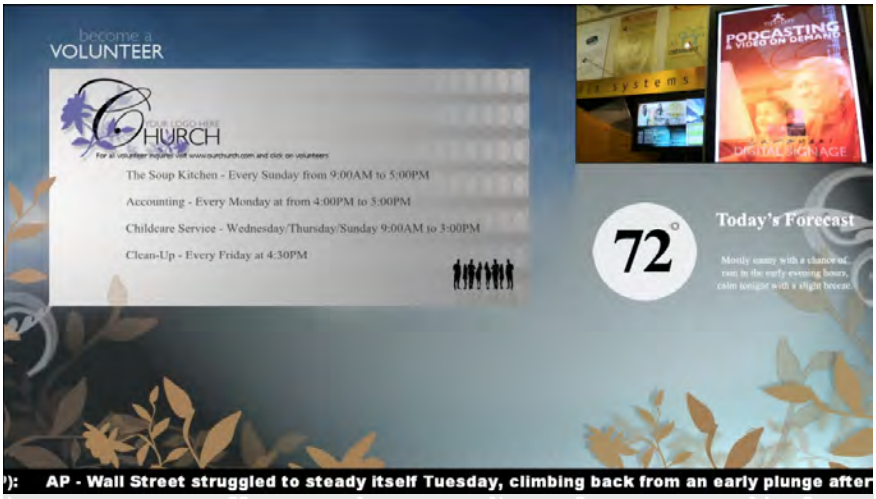

become a
VOLUNTEER
HURCH
The Soup Kitchen - Every Sunday from 9:00AM to 5:00PM
Accounting - Every Monday at from 4:00PM to 5:00PM
Childcare Service - Wednesday/Thursday/Sunday 9:00AM to 3:00PM
Clean-Up - Every Friday at 4:30PM
PODCASTING
& VIDEO ON DEMAND
DIGITAL SIGNAGE
72°
Today's Forecast
AP - Wall Street struggled to steady itself Tuesday, climbing back from an early plunge after

FIGURE 2.2: Here is an example of a channel layout with three zones and a crawl.

If you have ever watched CNN or Fox News, you'll notice crawls and graphic areas on the side of the screen while a dashing anchor delivers the 'news' in the main area. Carousel can be configured in a similar manner.

In fact, you can even put CNN or Fox News in a corner of the display, provided you have cable television and the optional video input card for Carousel.

This magic is made possible by two key features of Carousel: *channels* and *zones*. Channels are like an empty canvas that fills the entire display's screen. You tell Carousel that you want a channel with 1280 pixels across and 720 pixels down. You name it something descriptive, like "Channel 68 CG" or "Fennel Hall - Lobby".

You fill the channel's empty palette with *zones*. Each zone contains lists of bulletins that follow rules laid down by the administrator and the creators of each bulletin. When you add a zone to a channel, you're adding another information area to the *players* that address that channel in your Carousel system.

Want to use multiple zones on a channel, but have them look like one seamless presentation? Check out section 19.9 on page 201, *Creating a Seamless Background for a Multi-Zoned Channel*, which easily divides a channel-sized picture into individual backgrounds for each zone on your channel.

The term *player* is used to describe any device that is acting as a *display engine* for Carousel. A *display engine* is a piece of licensed software that accesses the main Carousel system, in search of a specific channel of Carousel. Once the display engine has contacted the server, it requests the bulletins for the channel that was selected in the preferences for the display engine. It then retrieves the bulletins that are assigned to the zones on that channel and then displays them accordingly. Hereinafter, we will use the term *player* to describe this device. In reality, it could be the display engine on a Carousel Server, a Carousel Solo or some other device.

Channels and display engines are licensed in Carousel. These licenses are included with a Carousel Solo. Zones are not licensed and hence there is no limit to the number that can be added to your system.

The simplest channels have one zone, and in this configuration the distinction between channels and zones is almost irrelevant[4]. This is most common when Carousel is used for television display, as the display is too confined for a large number of regions of information.

More complex configurations might have six or more zones on a single channel, providing the audience with a vast array of information at any given time.

2.4.4 Zones on Multiple Channels

! → In Carousel, you can place a zone on any number of channels.

Example: Imagine that you have a Carousel Server and two different Carousel Solos in the same geographic region. In this configuration the system is capable of displaying three different channels. You want to add a zone on each channel that shows weather information. You could create three different zones, one for each channel. A much more efficient configuration would be to create a single zone devoted to weather bulletins and place it on all three channels.

Zones have pixel dimensions and all bulletins created from that zone will use those dimensions. However, when you add a zone to a channel, you're free to stretch it in any way that is needed. Obviously, displaying a zone in anything other than its native resolution will reduce quality, but sometimes this is desirable.

Example: Let's say you have an LCD panel in your lobby that has several zones displayed on its channel. One of the zones is called *General Bulletins*. In the rest of your building, you are displaying that same general bulletin zone solely, using televisions on a RF network. In the lobby, the channel reduces that zone to a smaller size, making more room for the other zones. On the televisions, the full 800x600 channel is consumed by the zone, which has the same resolution.

[4] This was the only configuration possibility with releases prior to Carousel Version 5.

2.4.5 Bulletins

Bulletins are single messages created in Carousel. There is a wide variety of bulletins that can be created in Carousel, which can include graphics, text, dynamically updated web pictures, streaming video, data from databases, RSS feeds... the list goes on. In most systems, the majority of bulletins are created by users of Carousel from templates. These templates define areas of a bulletin used for text, graphics or any other media element that might be employed.

! → Bulletins are always created from a zone. That is, you pick a zone in Carousel, and media and templates that are associated with that zone are made available to you. Once you're finished making the bulletin, it's added to that zone's list of bulletins to display.

It is very common in larger systems to have zones that serve the same purpose, but for different audiences—such as two zones that show general bulletins in two different lobbies. This is why Carousel makes it very easy to copy bulletins to any combination of zones.

Example: A bulletin is created for the building's *general bulletin* zone or zones, but you also want the same bulletin to display in different zones. To do this you simply copy the bulletin from the *general bulletin* zone to the desired zone or zones.

When you tell Carousel to share a bulletin with another zone, it automatically resizes that bulletin to the target zone's pixel dimensions. When designing your system, it's nice to size zones to similar dimensions, especially if a lot of sharing is likely to take place.

2.4.6 Alert and Repeating Bulletins: Interrupting a Zone's Bulletins

There are times when the normal flow of things just will not do. Elections, weather conditions, alien invasions—these special events demand special attention and you may want to temporarily interrupt a zone's normal flow of bulletins.

Carousel has two special kinds of bulletins: *active repeating* and *alert* bulletins. Active repeating bulletins insert themselves every n^{th} bulletin that is displayed. Alert bulletins, when active, will interrupt all current bulletins. When the alert bulletin expires or is disabled, the bulletins in the active bulletins will continue their loop.

2.4.7 Full-Screen Alert Zones: Interrupting All of a Channel's Bulletins

When something truly demands attention, a special zone can be used to remove all other zones from a channel: the *full-screen alert* zone. When bulletins are active on this zone, a Carousel Display Engine will automatically remove all other zones[5] from the display and show this zone full-screen.

Full-screen alert zones, like regular zones, can be used on multiple channels. A channel can have any number of full-screen alert zone associated with it, which means that you can prioritize these zones on a channel to give you powerful control to override other full-screen alert zones, as well as your channel's bulletins.

[5] Except crawl zones, which we talk about next.

2.4.8 Crawl Zones

Carousel has crawl zones that may be attached to a channel. They are invisible until a crawl bulletin is activated. Once active, the channel will reduce all of the zones on the display, providing the room necessary to show the crawl bulletin. The crawl zone may be placed at the top or bottom of the screen.

Like full-screen alert zones, only one crawl zone may be added to a channel. However, a crawl zone may be used on any number of channels.

! → Unlike regular zones, a full-screen alert will not remove a crawl.

2.5 Pro and Enterprise Editions: Added Flexibility

If you purchased Carousel Pro or Carousel Enterprise, there is even greater flexibility in your system's configuration. To explore this increased flexibility, let's break down more of the components of Carousel.

2.5.1 Channel Licenses, Display Engines and Players

A Carousel system consists of:

The Carousel Server : This is the software/hardware combination that provides the web interface and manages the bulletins for all of the zones. It also runs the database and services that manage Carousel.

Carousel Channel Licenses : A Carousel system comes with one of these and more may be purchased. Every channel defined in Carousel must have a license.

Carousel Player Licenses : Each Carousel Player or Display Engine connected to the server takes one license. You may purchase more Player licenses if you have multiple Carousel Players displaying one channel.

Carousel Micro Player Licenses : Micro Player licenses are a stripped down version of Carousel Player licenses that don't support many multimedia functionalities, such as video. Each Micro Player connected to the server takes one license.

Carousel Display Engine : This is the software that generates the digital signage output on a display. The display engine creates the magic by obtaining data from the server, caching it locally, and then delivering the output to your display.

Multiple display engines may display the same channel; for example a bank with a branch downtown and a branch uptown would each have a display engine per site containing identical content. The determining factor for this configuration is that the banks are at two different physical locations. It is important to note that only one display engine can run on a computer at a time.

Carousel may be packaged in a variety of ways. For example, the Carousel Pro Server edition includes the server. Purchasing Carousel Pro Server and a Carousel Solo would give you everything needed to run a single channel on a single display engine.

Carousel Enterprise is a software only solution that does not include any channel licenses or display engines. To complete a Carousel Enterprise installation, a combination of server hardware and software display engines, channel licenses and/or Carousel Solos will need to be purchased. You may also purchase the channel license/display engine combo for Carousel Pro.

Carousel Solos are special Carousel systems designed for either very small installations that operate a single channel or as a player in a larger Carousel system. When adding a Carousel Solo to a Carousel Pro or Enterprise system, you are adding everything that you need for an additional channel, as the Solo includes a display engine and channel license.

A display engine license may be purchased separately. This is called the *Software Display Engine*. The Software Display Engine is installed on a compatible computer and it addresses an existing channel.

It may be helpful to review the chart in section **??** on page ??.

Main Menu: Server Setup: Licensing

Step-By-Step Example

The simplest configuration is the Carousel Pro server with a single Carousel Solo. Every bulletin created on a zone is positioned on the system's only channel. The display engine, running on the Carousel Solo, addresses this channel. The video output is plugged into the distribution equipment, which delivers the signal to the monitors (or it's plugged into a routing switcher in television applications).

Now, let's add a computer and a Software Display Engine license. We have two computers, both addressing the system's only channel. This scenario is common when we want the *exact same bulletins* displayed on monitors that are separated in such a way that video distribution cannot reach all of them, such as in two separate buildings. If ever there was a need to run one bulletin in one building and not in another, this configuration would fall short.

In that case, we'll add another channel license, which gives us the ability to create another channel in our system. We also add a zone to Carousel and make it unique to the second channel. Then we will address the second display engine to this new channel, giving us a unique display in our second building.

Notice how we were able to incrementally grow our small system by first adding a second display engine and then adding the channel license. It may not seem that impressive when we talk about two zones, but this flexibility becomes significant in challenging environments or in installations with more than 20 zones.

You may access your system's licensing information in FrontDoor.

2.5.2 Categorizing Zones with Tagging

Another feature that is important to the Pro and Enterprise editions is the ability to tag zones. *Tags* are keywords that describe a zone[6]. Example tags might be: Lobbies, Cafeteria, Western Region or Common Areas. A zone can have as many tags as you like.

Example: You might have a zone dedicated to a channel that is used for a display engine in a library's entry way. This zone may be tagged with: Library, Entryway, Common Areas, East Bank, Minneapolis Campus, and General Bulletins. In a system with

[6] Tags also describe media, but that's for chapter 19 on page 179.

300 zones, you may wish to ease locating this zone by selecting the ‘Library’ and ‘Entryway’ tags, which filters out zones that don’t have both tags.

Tags are also useful when you’re creating a bulletin and want it displayed on a specific group of zones. Using the above example, you can drill down to all zones in ‘Common Areas’ on the ‘Minneapolis Campus’. Alternately, you could select all ‘Library’ zones in the ‘East Bank’.

This feature is extremely important in very large installations where there is a need to filter choices in order to quickly find the zone, or zones, that you are looking for. What is nice about this approach is that you can select a specific set of zones according to your needs.

II. Planning and Setup

"A goal without a plan is just a wish."

—Antoine de Saint-Exupéry

3 The Setup Plan

If you are installing this Carousel system for another user, such as for a customer because you are the systems integrator, you'll need to have the questions that this chapter raises answered before you can perform your installation. Otherwise, you won't know key information, such as the channels' name, zone layouts, etc. As the systems integrator, read this chapter, but understand that only customer is going to be able to answer the questions within. As we mentioned in *The Essentials of Carousel*, you need to use the check list in appendix A on page 237 to guide your installation.

The setup process in Carousel requires that you make decisions about the look and configuration of your displays. You may want to show the weather on all of your displays in one corner and meeting room information in another. Maybe you are a television station and you want your station's schedule always visible in the bottom quarter of the screen with weather and general bulletins in the upper part. If you are running a Carousel system with many channels, you may have some zones that are shared across channels. You may have other zones that are similar in function, but will show different information for different audiences. Carousel can meet all of these needs.

This chapter will help you make decisions about your Carousel system's setup. We hope you consider it time well spent, saving you hours of work, reconfiguring your system after you realize you got it wrong. Alternately, it could be a waste of time. There is risk in everything. ;)

3.1 Designing Your Channel

As we discussed in chapter 2, channels contain one or more zone(s) and they can be placed on any number of channels. Every display engine tunes to a channel. These facts hold the key to determining how your system will be configured.

For single channel systems, most of your decisions will be very obvious. Just follow along and you'll be able to pick out the parts of this section that apply to you.

Dimensions of channel = monitor's resolution.

Your first step is to determine the size of the channel and what you want your channels to look like. The size will most often be determined by your display's output. Some common sizes are:

4x3 Standard Definition Television : 800 pixels across by 600 pixels down.

720p High Definition : 1280 pixels across by 720 pixels down.

1080p High Defnition : 1920 pixels across by 1080 pixels down.

1280 pixels by 768 pixels : Many LCD monitors use this resolution. It's called 16x10.

Other monitors, especially LCD monitors, may have additional resolutions. Check with your monitor's specifications and then test to make sure that the Carousel player can use that resolution. If it can't, you can usually get close enough so that the player and the monitor will agree and display a high quality picture.

In this manual, we talk about a *player* for Carousel. This is any device with the display engine software, including the Carousel Server, a Carousel Solo, or some other device you are using with a display engine.

Remember that *channels*, within Carousel's world, refer to a collection of zones that players can address. Therefore, while you are in the planning process, take time to name your channels. Helpful names might be…

- Blackhawk Middle School
- Corporate HQ Lobby and Lunchroom
- Fennel Hall
- Eagan Office-Room 101b Wall Sign

In the above examples, the difference between zones and channels comes into sharper focus. *Fennel Hall* might have weather, traffic information and general bulletin zones for the audience in the building's hallways. All of these zones are placed on the channel that is being addressed by the players in Fennel Hall. The naming becomes obvious when you understand the differences.

These names might not make sense to you, but remember: You are describing the location of the displays that will be driven by the players that are addressing this channel. You want to be able to identify them in a meaningful way within the software, so choose a name carefully.

In larger installations, remember to make the names unique. If you are managing 25 lobbies, it is not enough to call a channel *'lobby'*.

Finally, take note of the aspect ratio of your channel. Draw a box on a sheet of paper that has the same aspect ratio[1]. This will help you when you determine the zones that will occupy your channel's canvas.

3.1.1 Planning Tips for Your Zones

Single zone channels

Channels must have at least one zone. In single zone configurations, channels show one bulletin at a time, plus any crawls that may be active. In this configuration, you will create one zone for the channel and its resolution will be that channel's resolution. It couldn't be simpler[2].

Even if you create only one zone for a channel, you can still add a crawl for that channel. Crawls are special in that you don't leave room for them on your channel. Carousel will 'squish' your zones up or down when a crawl message is activated.

Multiple zone channels

Mixing multiple zones on one display or sharing zones across channels opens an

[1] That is, it's as square or rectangular as your display is.

[2] That's a lie. Because Carousel 4 didn't have zones, there was no need to set them up. You told Carousel the size of the channel and that was the size of any bulletins that would be on that screen. At least in setting it up, Carousel Release 5 is a tad more involved.

almost endless number of possibilities. You will add a zone to a channel when you want a specific kind of information to always be visible, even while other bulletins are displayed on other parts of the screen (figure 3.1).

weather
Snowing
Temp: 24°
Humidity: 100%
Wind: North at 13mph
carousel v5
tightrope
Tightrope Media Systems introduces Carousel 5.0, their latest version of their award-winning digital signage system.
With a zero training, zero administration design, Carousel makes enterprise digital signage attractive, affordable and manageable
I-35W at 26th Street
Stocks rally, Dow sets record close for 2nd day (Reuters): Reuters - The Dow Jones industrial average jumped 123 points to a second straight record close on Wednesday in a rally driven by optimism about the outlook for interest rates and profits. ...
3:30 pm Healthier Living Through Eating Glue Room A101
3:30 pm Tightrope Media Systems :: Digital Signage Presentation Room B102
4:00 pm Mothballing your Battleship Emerald Room

FIGURE 3.1: This example has six zones, each updating independently. In a multi-channel system, it is likely that two or three of these zones would be used on other channels.

You must understand zones and channels before you go about creating them within Carousel. If you are wrong and want one zone instead of two or need a zone sized differently, you will be in for a lot of effort duplication. Better to plan first and get it right the first time!

In short, make a zone for a channel when you always want its information on the screen.

Example: Do you want the weather always in one corner of the screen while other messages rotate through? Then make one zone for weather and position it the corner. Do you always want your meeting schedule or your station's programming schedule in the lower part of your screen? Then that would be another zone. Any time that you want bulletins updated separately, you will create another zone for them.

Do not confuse categories of messages with zones.

Do not confuse this with having bulletins of a specific category. That is, do not make a zone just for sports and just for meetings, unless you really want two parts of the screen to always show each category. It's usually the case that you want many different topics of bulletins on the same zone, with specialized zones for very specific applications, like TV guides, meeting room schedules, traffic conditions, weather, etc.

If you want a zone to show on more than one channel, make sure that you plan the size and aspect ratio ahead of time. It's is best to keep them the same size on each channel. Otherwise the Carousel Display Engine will resize them for you, which may slightly reduce their quality.

Example: You want the weather in the corner of all of your channels. All of the display engines will be in the same city, so you make a single zone that will be used on all of your channels.

Draw zones on paper before you make them in Carousel

When you are planning the look of a channel, draw boxes for each zone on the

channel to give you a visual idea of the look before you set them up in Carousel's interface.

One awesome tool for doing this is *Adobe Photoshop*. The guide function is especially useful, as you can easily visualize the layout of your channel. To activate guides in Photoshop, show the rulers of your canvas by pressing *CTRL+R* (if they aren't already active). Then *click+drag* from the ruler and onto your canvas. Examine figure 3.2. You'll see a blue guide, which you can use as a border for your zones.

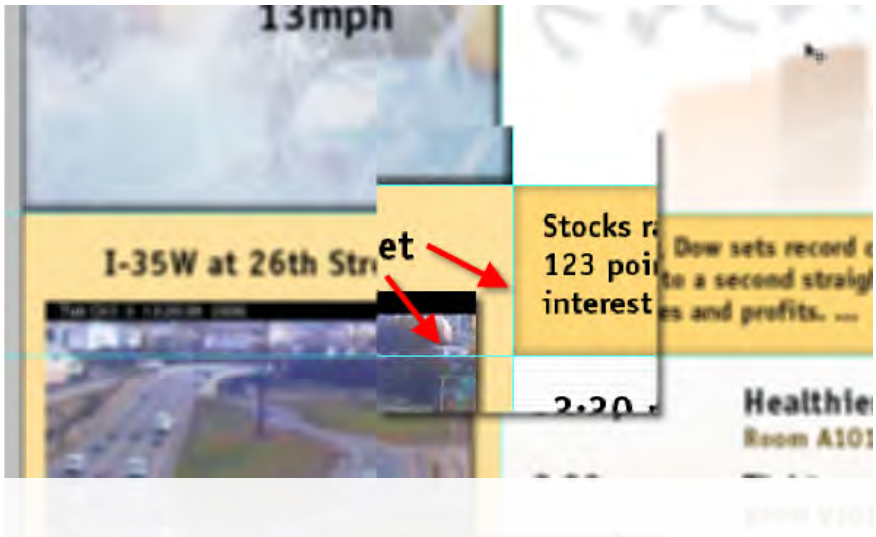


FIGURE 3.2: With Photoshop, you can use the guide feature to visualize where your zones will be placed. Then you can place backgrounds and text to help guide the look of your channel. Use this method to guide the creation of your templates, which is something we cover in section 19.7.

Also, consider situations where you have many zones that are serving a similar purpose. Again, you may want to make sure that they are also sharing similar dimensions, in case you want users to be able to send bulletins to multiple zones. Carousel will automatically resize the bulletin as it is copied across zones, however zones with a radically different aspect ratios or sizes will not look as good as the bulletin on the original zone (section 2.4.5 on page 24).

With multi-channel systems, the most important thing is to plan your zones and channels, deciding what content will be on what zone and what zones will be duplicated on which channels.

Tags for zones are important in large installations.

While you are creating zones, it is important to establish the tags that you will use for your zones, especially in larger installations. Not only do you not want "`Lobbies`" and "`Lobby`" as tags, but you also want to consistently apply those tags to all of your zones. If you have channels displayed exclusively in your lobbies, make sure that all of them get that tag. Try to think of all the ways you may want to group displays. You can add or delete tags at any time, it's just easier to get it right the first time. We introduced this topic in section 2.5.2 on page 26.

4 Carousel's Video Capabilities

Carousel Players and Solos run the Carousel Display Engine. These devices are designed for smooth, attractive playback of a wide range of content. Here are some guidelines to follow:

4.1 Carousel Player Software Comparisons

Carousel has multiple types of Player Software available, each with their own strengths. See figure 4.1 for this information. For information on how to change your Display Engine type, see section 8.2 on page 72.

FIGURE 4.1: A comparison between the different available Carousel Player software types.

	Display Engine - Simple	Display Engine - Performance	Display Engine - Standard	Player - Micro License
Purpose	Low power Windows-based players	Optmized for video playback and low power Windows-based players	For most modern Wndows-based player hardware	Low power/Room sign Ubuntu 10 Linux players (Snap Players)
Multi-zone	Yes	Yes	Yes	Yes
Transitions	Cut Only	Fade Only	Effects	Fade Only
Crawl	No	Swoop Up	Horizontal	No
Video	Yes	Yes	Yes	No
Flash	Yes	Yes	Yes	No
Live Video	Yes	Yes	Yes	No
Local Caching of Content	Yes	Yes	Yes	No

4.2 Video Output Resolution

All Carousel Players and Solos officially support the following resolutions:

- 800 *x* 600
- 1024 *x* 768
- 1280 *x* 720
- 1280 *x* 768
- 1366 *x* 768
- 1440 *x* 900
- 1680 *x* 1050
- 1920 *x* 1080
- 1920 *x* 1200

Other resolutions may run just fine, but these resolutions are specifically supported.

Carousel's Players and Solos support landscape or portrait mode, where the screen is either shown widescreen (default) or standing on its end. See section 8.9.3 on page 87, *Setting up a 9x16 Display* for more information on adjusting this setting.

4.3 Video File Playback Performance and Resolutions

Carousel supports the following video file formats:

- WindowsMedia 9 and higher (.WMV)
- Quicktime 7 and higher (.QT)
- MPEG 1/2/4, including .H264 (.MPG,.M4V)
- Standard AVI files supported by a default Windows XP installation, especially DV (.AVI)

Carousel supports playback of these formats at resolutions up to 1280 *x* 720 (720p), *but only if the display engine's resolution is at 720p or lower.* If the display engine is set to a higher resolution, stuttering will occur.

Also, high performance codecs, such as .H264, may stutter more often than lower performance codecs, such as MPEG 2.

We've had the best lucking using the *WMV 9 Advanced* codec and setting the bit rate to over *20mb/s*. If given the option, keep the size and frame rate at "current". See figure 4.2 for an example of these settings in *Flip4Mac*.

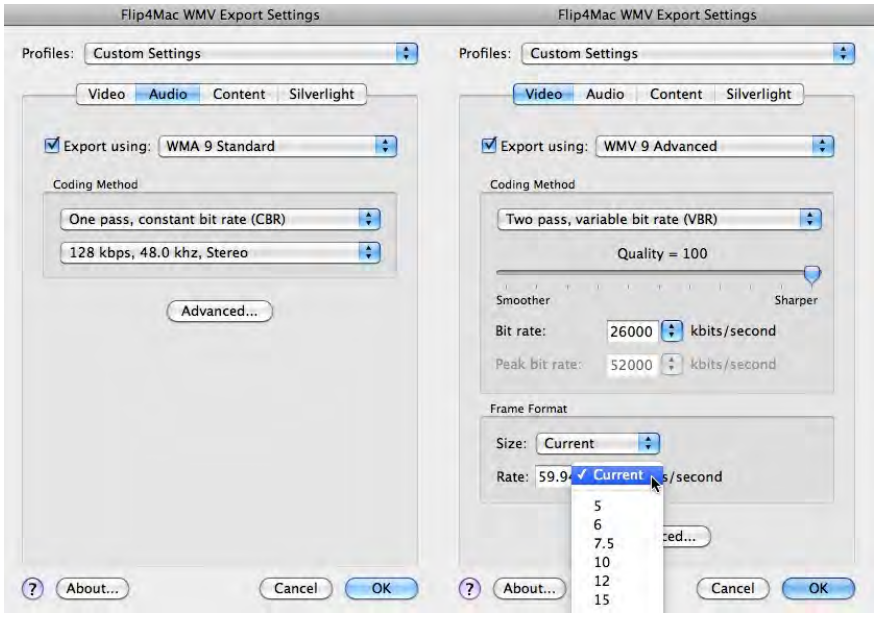


FIGURE 4.2: Preferred export settings in Flip4Mac for Carousel videos.

4.4 Crawl Performance

Carousel supports a crawl ticker, which appears at the top or bottom of the display. Under most conditions, this crawl will not display excessive or distracting stuttering, but occasional stuttering is to be expected.

Stuttering can be minimized by:

- Keeping the display resolution to 720p or lower
- Minimizing playback of video files that use high performance codecs (.H264)
- Minimizing playback of Flash animations with many moving components.

As of Carousel 6.2, a less graphically intensive crawl that "rolls over" has been added to the **Performance** Graphics Manager. See section 8.2 on page 72 for information on changing the Graphics Manager for the Display Engine.

5 Hardware Setup

This chapter is a reference for physically installing your Carousel system. If you are the installer of the Carousel system, then this chapter is for you. Inevitably, the hardware installation process will include some software configuration, which is what the chapters after this one are about.

In order to complete the tasks in this chapter, someone will have had to read chapter 3 on page 31, *The Setup Plan*. Use the information learned in this chapter and the checklist in appendix A on page 237 to inform your actions here.

Please refer to the label on the back cover of this manual to determine your specific hardware configuration.

5.1 Hardware Installation

As a result of the differing size chassis, mounting varies between servers. See the guide below for more information

Do not plug the unit's power in at this step. Since the machine automatically turns on when power is supplied, plugging it in will boot the system. This could reset the system's video settings.

Pro Chassis : When mounting servers that are in the Pro chassis, you must first install the included rack rails. Instructions are found in section 5.1.1, *Installing in a Rack*.

These servers are heavy, especially when you are trying to hold them perfectly flat and slide them precisely into the rack rails. This is a job that is best accomplished with two people.

Carousel Server and 310R Chassis : The Server and 310R chassis only need to be mounted using the front ears[1].

240 Chassis : The 240 chassis ship with mounting brackets that can be mounted to either side of the chassis using the included screws in one of two positions.

These screws happen to align with the distance between two VESA 75 mounting points, which will be on the back of many monitors.

5.1.1 Installing in a Rack

The *Carousel Pro*, server includes rack rails, which provide support for the server when installed in an equipment rack.

These rails are required. The depth and weight of these servers will cause them to sag and eventually break if they are not installed.

[1] Due to the weight distribution inside the chassis, only the front ears are required for installation.

The *Cablecast Bundle*, *SX LE*, *CG 250*, *Carousel Server* and *Carousel 300R* are rack mounted but do not require rear support and do not include rack rails.

Unfortunately, there are many different variations on installing these rails and your choice may have much to do with the type of rack that you are installing this into. Use this section as a guide. Your installation will vary so be sure that however you complete the task, your rails and the server are securely fastened.

When following the instructions for installing your rack rails, keep in mind that each side of the server uses identical rail parts, as there is no such thing as a right and left part. The parts installed on the right side of the server are upside down from the left side and there is only one lever that makes this evident.

To install the rack rails:

Step 1: Locate one of the two rack rails, shown in figure 5.1.

FIGURE 5.1: The rack rail that is screwed to the server.

Step 2: There are three parts to the rail, two of which may be separated. Separate the component of the rack rail that attaches to the server from the one that attaches to the rack by holding the lever shown in figure 5.2 open and pulling it out, shown in figure 5.3 on the facing page.

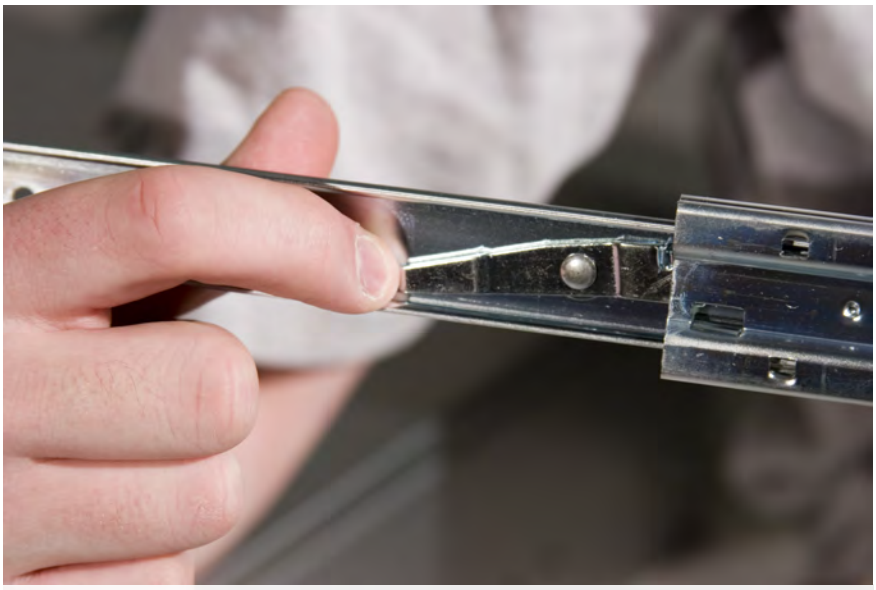


FIGURE 5.2: Hold the lever open and pull until the server's rail is separated from the rest of the rack rail.

FIGURE 5.3: Separating the two rail components. The hand in this figure is holding the component that is screwed to the server.

Step 3: Attach the rail that has the lever to the side of your server using the included screws *making sure that the tapered end of the rail is at the back of the server.* Generally, there will be only one way that hole pattern on the rail will match up with the tapped screw holes on the server.

Step 4: Repeat from step 1 on the preceding page for the other side of the server, making sure that the tapered end is, again, at the back of the server and that you're putting the rail at the same position horizontally and vertically as the rail on the other side.

Step 5: Your rack should include three mounting points that are vertically. One will be in the front, another in the back and another in the middle, an example of which is shown in figure 5.4.

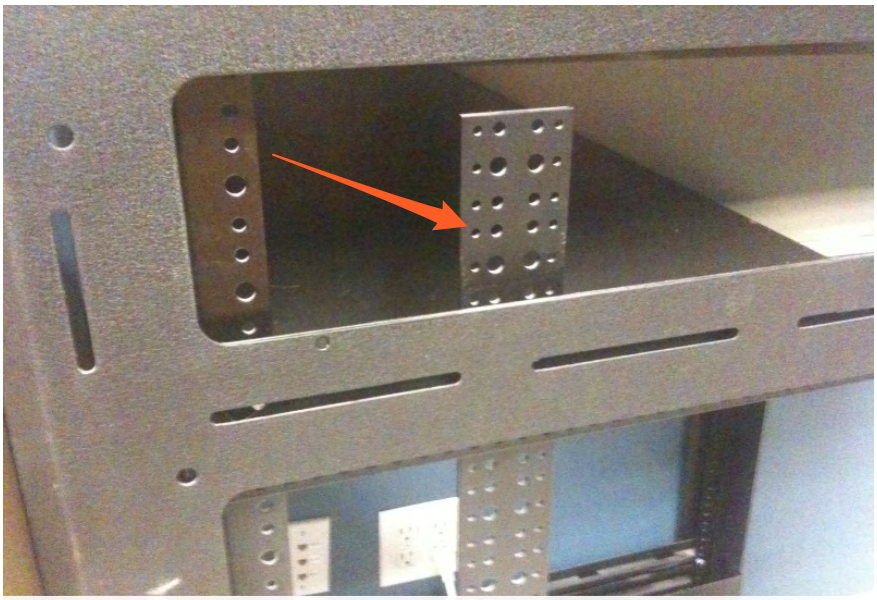


FIGURE 5.4: The middle mounting point is for the front of the rack rail.

The back and middle mounting points are where you typically want to attach the rack rails to your rack. If you don't have a middle mounting point, then you'll have to use the front mounting point.

Attach the L-bracket, shown in figure 5.5 on the next page to your rack so that when you attach the mount bracket shown in figure 5.6 on the following page to it, you

will have the correct amount of space to insert the server. Do this on both the middle mounting point and the rear mounting point.Trial and error will come into play.

FIGURE 5.5: The L-bracket that you attach to the rack.

FIGURE 5.6: The mounting bracket that you attach to the L-bracket

When you screw the L-bracket to the rack and the mounting bracket to the L-bracket, tighten them all the way down and then back the screw out a half-turn. This will secure the brack and mount, but allow you to make adjustments once you put the server in place. When everything is in the right spot, tighten the screws back down again.

Step 6: Next, screw the rack rails (the half that is not already attached to the server) into the brackets that you just attached to the rack. Make sure that both sides are mounted at the same point and do not tighten the screws all of the way down. You will most likely need to adjust them once the server is in place.

Step 7: *With help from at least one other person* Slide the server into place, adjusting the position of the rails to accommodate the server. Make sure that you can slide it all the way into the cabinet and that you can pull it out enough to service the top of the server.

Step 8: Once the adjustments have been made, tighten down all of the screws on all of the mounts and brackets.

It is probable that the above steps will not get your rack rails installed correctly. There are many kinds of racks and many ways to install rack rails. Take your time, make sure you have help and in some cases, be creative. Installing rack rails is almost never easy.

5.1.2 Connecting the Video Outputs

If you are connecting your Carousel Server or 310R to a NTSC or PAL video system, you will setup and configure the ConvertDVI hardware which is covered in section 8.8 on page 82.

If you are using a VGA or DVI distribution system, then you will use the system's DVI connector (and a DVI to VGA adapter if needed), marked in the system diagrams.

Once your video connections are in place, your Carousel Player may be ready for configuration, which is covered in chapter 8 on page 71, *Configuring Players*. The trouble is, if you have yet to set up your channel names (section 7.3 on page 61, *Define Your Channels*) and zones (section 7.2 on page 59, *Create Your Zones*), so your channels won't show you any information at this point.

Setup up your channel in chapter 8 before you adjust the video output of your players, which we do in chapter 8

5.1.3 Power for your Carousel Servers

Like any computer server, your Carousel Server/Solo requires power. This chapter speaks to some best practices for providing power to your system.

Your players are a different matter. They will probably not be subject to ground loops, redundant power or UPS systems. They're out in the field attached to monitors and will most like just take power directly from the wall. Your server, however, should have a power source that is protect and this section is mostly speaking to the issues related to its environment.

Uninterruptible Power Supplies

An uninterruptible power supply (UPS) is an essential part of your system. Not only does this help to keep you on the air, but it also protects your system's integrity from sudden power loss, brown outs and most power spikes.

The size of your UPS will depend upon the number of computers in your system and whether or not you want to include other devices, in addition to your Tightrope Servers.

Power requirements for your Tightrope equipment is found in chapter ?? on page ??, .

Redundant Power Supplies

All servers from Tightrope that end in *Pro* come with redundant power supplies. This includes your *Carousel Pro* and *Cablecast Pro* machines. Furthermore, your *SX2* or *SX4* server may have been ordered with a redundant power supply.

If you have redundant power supplies, you must connect both power supplies to a power source to avoid an alarm from sounding, which warns you of failure in one of the power supplies.

It's a good idea to connect your power supply to separate circuits. If one circuit goes dead, your system is still running, albeit with an annoying alarm sounding in your rack.

Replacing a Power Supply

To replace a power supply that has failed:

Step 1: Unplug the power from the failed unit. It is not necessary to power off the computer to replace the failed power supply.

Step 2: Pull down on the tab at the top of the failed unit.

Step 3: Pull the failed unit out of the chassis.

Step 4: Insert the new unit into the empty slot.

Step 5: Plug the power cable into the new unit.

Ground Loops

A ground loop is unwanted current between two connections, usually a ground. It manifests itself as bars of noise in the video signal of your equipment, as shown in figure 5.7.

FIGURE 5.7: This is what ground loop interference looks like.

Eliminating ground loop can be tricky. An excellent article on the subject can be found on Wikipedia at:

en.wikipedia.org/wiki/Ground_loop_(electricity)

5.1.4 Powering Up the Server

Plug the power cable into the unit. If the unit does not power up automatically, press the power button on the front.

If you're turning on a *Carousel Solo* or *Carousel Server* (not *Pro*), the computer will automatically start the *Carousel Display Engine*. To stop it, click the **Cancel** button when the Carousel splash screen appears.

> If you hear a loud constant tone when you boot up the Carousel Pro, verify that you have connected power to both of the onboard power supplies. See section 5.1.3 on the preceding page.

5.2 System Setup

Now that your servers are mounted and powered up, it's time to configure them for operation. This section covers software configuration that should happen prior to the users getting their hands on the system.

5.2.1 Configuring the Network Settings

Many systems that Tightrope makes are based on a web-centric design. This means that day-to-day operation and most of the configuration of these systems is accomplished through a web interface. This section covers basic setup procedures, such as setting IP addresses.

Connect the system to your network using the Ethernet port on the back of the server. The Carousel *Server* and Carousel Pro require static IP addresses. Carousel Players do not need a static IP address. Setting the IP address is covered in section 5.2.1 on the following page.

Discovering a Computer's Name

Often, you can address a Tightrope server by its name. This may be easier than obtaining a static IP address, although it is less reliable since the network name will point the computer at its address. If that address changes, you're at the mercy of Windows Networking and its ability to 'rediscover' the address.

To find the network name:

Step 1: From the Windows desktop, right-click on **My Computer**. In Windows XP, right-click on **My Computer** from the **Start** menu.

Step 2: Click **Properties**.

Step 3: Click the **Computer Name** tab at the top.

Step 4: The name to the left of **Full computer name** is the name of this computer.

By designating a static address, you may address the machine using its IP address instead of its network name. This gives you some flexibility in how the computer is named[2]. It may even be necessary, especially if your organization uses a domain controller and restricts access to computers outside your domain.

To set the IP address to a static number:

Step 1: From the Windows desktop, navigate to the control panel by clicking on the **Start** menu.

Step 2: If the Control Panel is in "`category view`", select **Networking and Internet Connections**, then click **Network Connections**. If the Control Panel is in "`classic view`", double-click on the "`Network Connections`" icon.

Step 3: Right-click on the "`Ethernet`" icon and select **Properties**.

Step 4: Double-click "`Internet Protocol (TCP/IP)`" to open its properties dialog (figure 5.8).

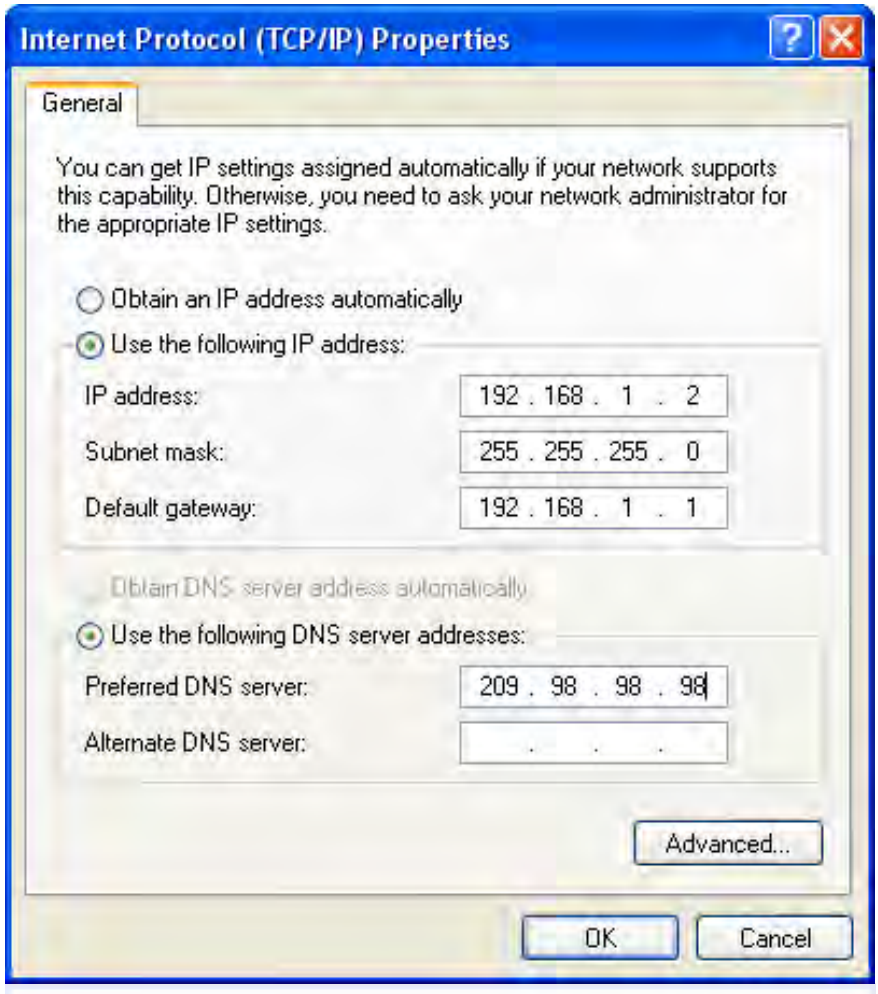

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 1 . 2
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 209 . 98 . 98 . 98
Alternate DNS server:
Advanced...
OK
Cancel

FIGURE 5.8: This is the TCP/IP settings dialog in Windows.

[2] . . . useful when joining it to a domain. . .

Step 5: Change the radio buttons to **Use the following IP address** and **Use the following DNS server addresses**.

Step 6: Enter you servers network settings into the provided fields. If you are unsure about the required settings, consult your network administrator or see the *Installation Guide* for more information.

Step 7: Click **OK** to save your settings.

5.2.2 Setting the System's Time

All Tightrope servers will automatically attempt to synchronize their system clock using the Network Time Protocol (NTP). At this point, we'll assume that this is working and only worry about setting the time zone. For more information on synchronizing the clock, refer to *FrontDoor: The Manual*.

From the server's desktop, double-click on the time in the lower right of the screen[3]. This will open the **Date and Time Properties** dialog box. Click on the **Time Zone** tab to reveal the window shown in figure 5.9

Select your time zone from the list.

It is important that you set the time zone for all servers and Carousel Players.

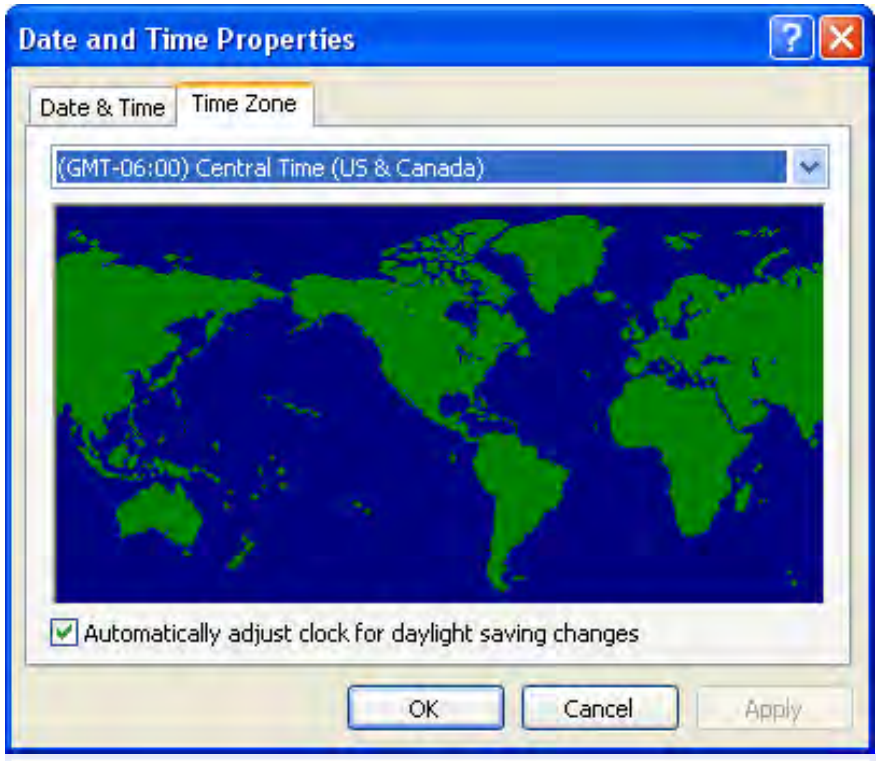


FIGURE 5.9: Select the time zone that the server is in from the pop-down list and choose **OK**.

[3] This region of the screen is called the system tray.

5.2.3 Installing Carousel Players

Follow the instructions in section 5.1.2 on page 43 for configuring the player's video output.

Note that you will need to point this server at the main Carousel Server. To do this, start the display engine, click on the **Configure...** button and enter the IP address into the **Server** field located in the **Carousel Server Settings** are of the Configuration screen.

In order to verify connectivity to the Carousel Server, click the check-mark to the right of the **Server** field. This action will verify that Player and the Server can communicate with each other. If you see the status of "`OK`", choose the channel you want displayed from the **Channel** drop down menu and choose **Save**. If "`FAILED`" appears, the player cannot communicate with the server, verify network connectivity, network settings, and the server's IP address.

See the *Installation Guide* for information regarding network port requirements for display engines, especially if you are operating a player that is separated from a Carousel server by a network router.

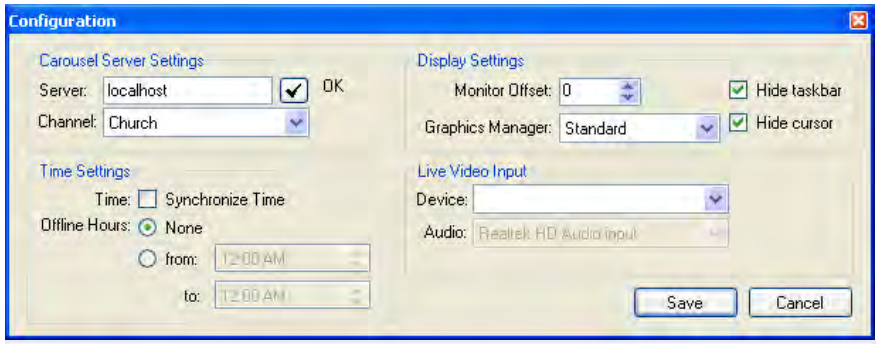


FIGURE 5.10: The Carousel display engine configuration screen.

5.2.4 Language Support: Changing The System Locale

Carousel language support (introduced in version 6.3) is two things: support for non-US date formats throughout Carousel and support for bulletins to be created in other languages.

The date support requires the server and player's operating system to be configured for English but with another country's locale set. Carousel will respect the locale for any date formatting such as in EDS, Date/Time display, scheduling, etc. The server's locale will be used for any rendering, the player's locale will be used only for the Date/Time display (the one that rotates around and is set up on a channel), it does not have to agree with the server, but usually will.

Support for other languages includes right-to-left text (Arabic, Hebrew, Farsi) and Asian language word wrapping (Japanese, Simplified/Traditional Chinese and Korean). Any other unicode text will be rendered, but will be treated with European direction and word wrapping rules. Only one language class should be used per text block in a template, i.e. we don't support embedding English words inside Arabic text, you need to use multiple text blocks for that.

Read on for more information about changing the locale on the Carousel Server and all Carousel Players.

Windows XP

Step 1: Click "`Start > Control Panel`".

Step 2: Double click the "`Regional and Language Options`" icon.

Step 3: Click the "`Advanced`" tab.

Step 4: Under the "`Language for non-Unicode programs`" section, select the desired language from the drop down menu.

Step 5: Click "`OK`". If needed, follow the guided instructions to install any needed files.

Step 6: Restart the computer after installation is complete.

Windows 7

Step 1: Click "`Start > Control Panel`".

Step 2: Click "`Clock, Language and Region > Region and Language`".

Step 3: Click the "`Administrative`" tab.

Step 4: Under the "`Language for non-Unicode programs`" section, select the desired language from the drop down menu.

Step 5: Click "`OK`". If needed, follow the guided instructions to install any needed files.

Step 6: Restart the computer after installation is complete.

6 Introduction to Carousel's User Interface

This chapter shows you how to log into Carousel and will introduce you to many of Carousel's common user interface features. This chapter is important both as an introduction and as a reference while you read other chapters. Instead of repeating instructions on forms that appear multiple times within the software, we put them here. At this point, some of elements of the user interface may not be relevant to you. Just glance through the later parts of this chapter, knowing that you will return here often as you read through the rest of the manual.

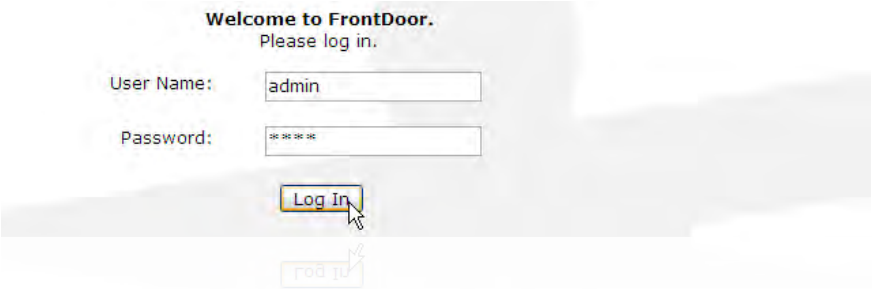
Remember, Carousel is a web application and you access it from your network. There is no need for users to install special software to create and manage bulletins, other than your favorite web browser. So let's get started!

6.1 Logging Into Carousel

Provided that your Carousel system is on the network, you can login by simply typing its IP address or network name into your favorite web browser.

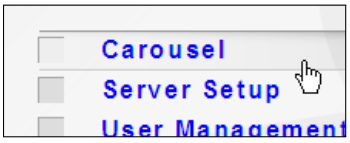
For a detailed guide on installing your Carousel system and putting it on the network, please see the chapter 5 on page 39, *Hardware Setup*.

FIGURE 6.1: The FrontDoor login



Once you see something like the picture in figure 6.1, type in the account information for the administrator. By default, this will be a username of "`admin`" and a password of "`trms`".

This is the default password for the administrator account. Once your system is online and ready, it is critical that you change this password.



Once you successfully log into the system, you'll be greeted with the FrontDoor menu. Setting up your FrontDoor server is covered in *FrontDoor: The Manual*, so go read that reference if you're curious about **Server Setup** or **User Management**. For now, go ahead and click on the **Carousel** menu option.

6.2 The Main Menu

A fresh installation will look like figure 6.2 on the following page. If you or someone else has already walked through the initial setup of your system or you've

Tightrope Media Systems
About | FrontDoor | Log Out | Main Menu
Main Menu
Logged in as: admin
Configure
?
Welcome to Carousel.
carousel
It appears as if this is your first time using Carousel.
Here's what you need to do to get started:
1. Create a Zone.
You can add Zones by clicking on the yellow "Configure" button at the top right of this screen.
2. Create a Channel.
Channels are also made inside of the "Configure" area. Don't forget to add your Zones to the new Channel.
3. Add some media to your Zone.
You can add media to a Zone by clicking on the "Media" link which will appear on this Main Menu.
Details about this process can be found in the Carousel Quick Start Guide.
Thanks for using Carousel!

FIGURE 6.2: A Carousel System that has not been set up

purchased a Tightrope Creative Channel, then you'll be staring at something like figure 6.3. Since this would be a very short chapter with nothing to explore, we'll pretend your system is already set up. If you want to follow along and it isn't showing you the good-ness in figure 6.3, then you have two options:

FIGURE 6.3: The Carousel Main Menu

store.trms.com : Go to the creative store and purchase a professionally designed channel that will add templates, backgrounds, pictures and other content that will look fantastic on your displays!

demo.trms.com : Go to Tightrope's demonstration site and log in using one of the example systems that you'll see. The log in information is included next to each example. Once you've logged in, you'll see a working Carousel system that will be perfect to use as you follow along in this chapter. Keep in mind that the zones and channel names used on the demonstration system are probably not what you will eventually choose

for your system.

First let's look at the main menu:

New Bulletin : This is where you go to create any kind of bulletin, except *Alert Bulletins*. These include bulletins created by users, uploaded through the web interface or dynamically created by Carousel through data sources.

New Alert Bulletin : When you need to interrupt a zone's bulletins for a special event, such as in an emergency, you can use an *Alert Bulletin*. When active, an Alert Bulletin will suspend all normal bulletins. When they are de-activated, the normal flow of bulletins will resume.

Manage Bulletins : Once bulletins are in the system, you can change their order, move, delete and edit them. The *Manage Bulletins* menu is also where you can approve bulletins from other users and delete stale bulletins whose time has passed.

Media : Carousel utilizes media in bulletins that are created from templates. The *Media* menu includes: backgrounds, pictures, video clips, sound files, templates and media tags. Templates create the outline for a new bulletin, predetermining the placement of text, graphics, video and the bulletin's background.

Event Schedule : The event schedule is for use if you have bulletins that show scheduled information that is entered directly into Carousel. This is covered in section 17.9 on page 150, *The Event Schedule Bulletins*.

Extras : Includes screensaver setup and URL links for RSS feeds and a public web interface for active bulletins see chapter 20 on page 205, *Extras*.

Zone Settings : This is where you establish settings such as who gets emailed when a bulletin is waiting for approval. It also is where you can enable or disable the public web output of carousel.

6.3 The Status Bar

The *Status Bar* at the top of the bulletin, illustrated in figure 6.4, is an ever-present guide to what's happening and where you are working within the software. Also, in figure 6.4, you can see that we've helpfully labeled some of the bar's features. We highlight each in the following list:

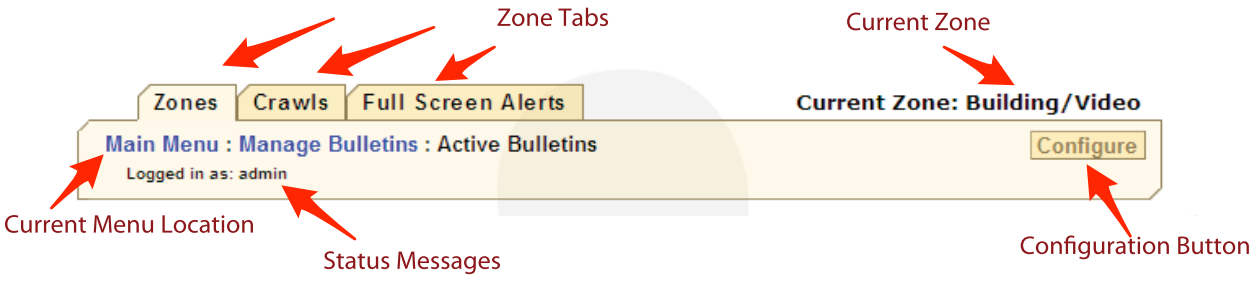


FIGURE 6.4: The Status Bar

Zone Tabs : These tabs list all of the zones that are available to the current user. There are three zone types: zones, crawls and full screen alerts. We cover each in part 3, part III on page 101, *Making Bulletins*.

Current Zone : This label highlights the zone that you are currently working on. It's an extremely important label because everything in Carousel tends to center around the current zone that you are working on. That is, all of your backgrounds, templates and the screens on which your bulletin will appear on are all determined from which zone you create them.

Current Menu Location : As you navigate through the software, you are presented with different menus. The navigation of these menus is displayed in this label. You'll notice that the current menu is shown as text, while previous menus are hyperlinked. You can navigate to previous menus by selecting these links.

Status Message : Carousel used this area to communicate information such as a warning or the result of an action you took.

Configuration Button : This button is available only from the main menu and only to users that are given permission to change Carousel's configuration. This is where you are presented with access to all of Carousel's internal configuration settings. We go into detail on this subject in chapter 7 on page 59, *Setup Basics: Step-By-Step*.

6.4 Quick Links

FIGURE 6.5: Quick Links

The quick links at the top of the bulletin (figure 6.5) are always with you within Carousel's interface. They provide shortcuts to many menu items, such as making alert and standard bulletins, managing bulletins and returning to the main menu. In addition, there is a link to log out, return to the main menu and to exit to FrontDoor's main menu.

6.4.1 About Menu

The *About Screen* is accessible only from the quick links at the top of the screen. If you call in for technical support you may be asked to navigate to this screen which gives you current version information.

6.5 Selecting Zones

There are two ways to select zones within Carousel. One is through the standard menu, shown in figure 6.6 on the next page. When there is more than one zone, the tabs at the top will be labeled *Zones, Crawls* and *Full Screen Alerts*. Hovering over these tabs will reveal all of the zones under each category.

All zones will always be shown in the pop-down zone menu for the built-in administrator account, *admin*. Other user accounts may have limited access to zones, in which case; Carousel customizes the menu according to granted permissions. See *FrontDoor: The Manual* for further details.

6.5.1 Zones with the Pop-Down Menu

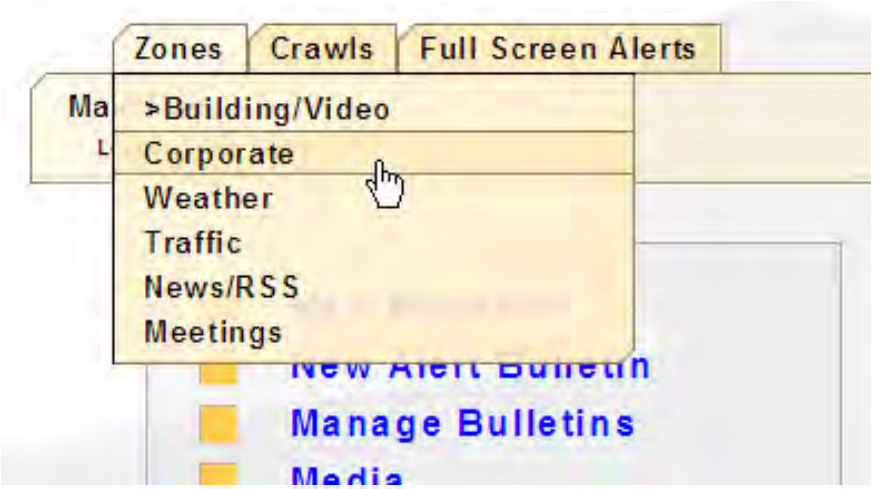


FIGURE 6.6: When there are only a few zones, a pop-down menu will appear when you hover over any zone tab that has more than one zone.

The '>' signals the current zone.

Notice that in figure 6.6, the first selection, *Building/Video*, has a greater-than '>' arrow next to it. This is to highlight that this zone is currently selected.

6.5.2 Zones with the Tag Selector

In a system with multiple zones Carousel allows you choose how you view the list of zones. By default, Carousel will display systems with less than 15[1] zones in a pop-down menu and systems with greater than 15 zones in a Zone Selector window. At the start, all of the available tags and zones are listed. When you select a tag on the left side, only zones that include that tag will be shown. In addition, only tags that are also in the remaining zones are shown. That is, if there are no zones that have both the "`Minneapolis`" and "`Saint Paul`" tags, then "`Saint Paul`" would not appear after you selected "`Minneapolis`".

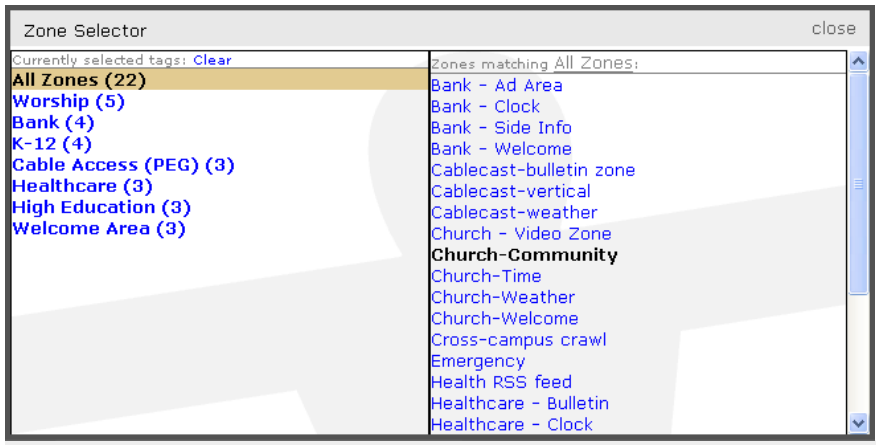


FIGURE 6.7: When you select tags on the left, Carousel will filter out tags *and* zones that don't match the selected tag. You can keep selecting tags until you find the zone(s) that you're looking for.

The tag selector will appear when you want to switch zones or when Carousel asks if you want to copy a bulletin to other zones. When copying a bulletin, you can

[1] This number is defined by the user **Main Menu:Configure:System:Zone Selection Style**

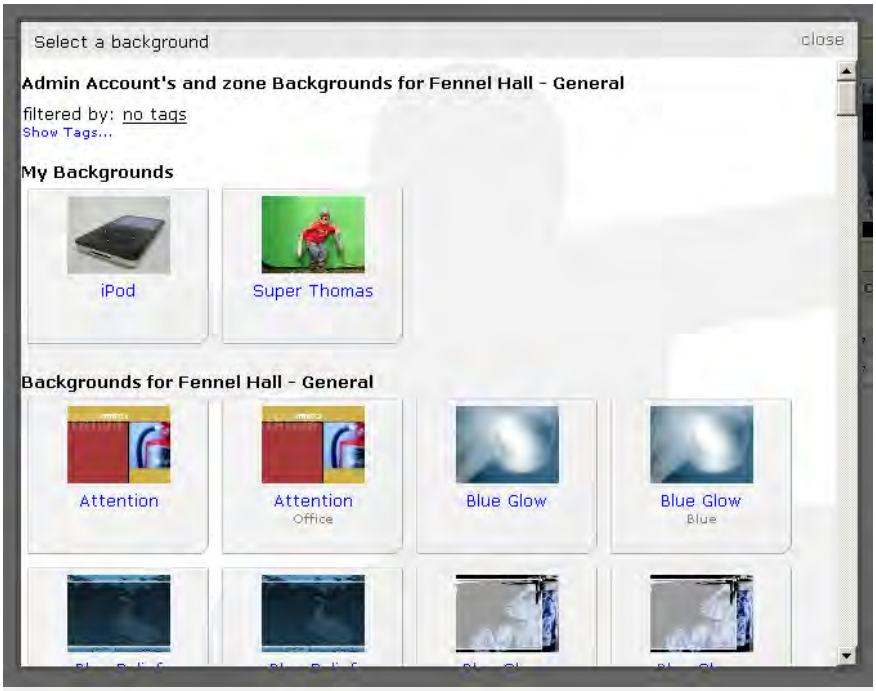
use tags to filter down to exactly the combination of zones that you are looking for, instead of having to pick through the entire list.

You can set the threshold for when Carousel uses the pop-down list and when it uses the tag selector. We cover this topic in section 11.2.1 on page 96, *Zone Selection Style*.

6.6 The Media Picker

There will be times when you need to select a background or picture[2]. When this happens, you can pick one from a pop-down list, or use Carousel's media picker tool, illustrated in figure 6.8. You get to this screen by clicking the **select** button next to any background or picture pop-down list.

FIGURE 6.8: The Media Picker



You'll notice in figure 6.8 the *My Backgrounds* and *Backgrounds for...* labels. These two labels separate backgrounds which are only viewable through your account and backgrounds available to anyone using that zone.

'My' and zone media are unique to that zone.

Remember, both the *'My'* and zone backgrounds/pictures are unique to that zone. That is, if you switch to another zone, you will see a unique set of backgrounds or pictures listed in both the *'My'* and backgrounds sections.

To select a picture when you are using it in a bulletin, click anywhere within the picture's box.

When you are editing pictures from the **Media** menu, clicking on the title of the picture allows you to edit its properties. Clicking anywhere where else within the picture's box selects it. Also, you may select more than one picture. When

[2] To keep things simple, in this section picture means the same thing as background and vice-versa, since they are treated the same in the media picker

editing pictures, you will notice a **Select All** or **Select None** label at the top of the list.

6.6.1 Selecting Media With Tags

FIGURE 6.9: Selecting media with tags.

Admin Account's and zone Backgrounds for Fennel Hall - General
filtered by: Weather and Natural
Hide Tags...
Abstract (1) Blue (4) Brown (1) Food and Drink (0) Green (0) Monochrome (2) Natural (9) Office (0)
Party and Events (0) Red (0) Technical (0) Weather (9)
Backgrounds for Fennel Hall - General
Weather ClearSky
Blue, Natural, Weather
Weather Cloudy
Natural, Weather, Monochrome
Weather Fog
Natural, Weather
Weather Forecast 1
Blue, Natural, Weather

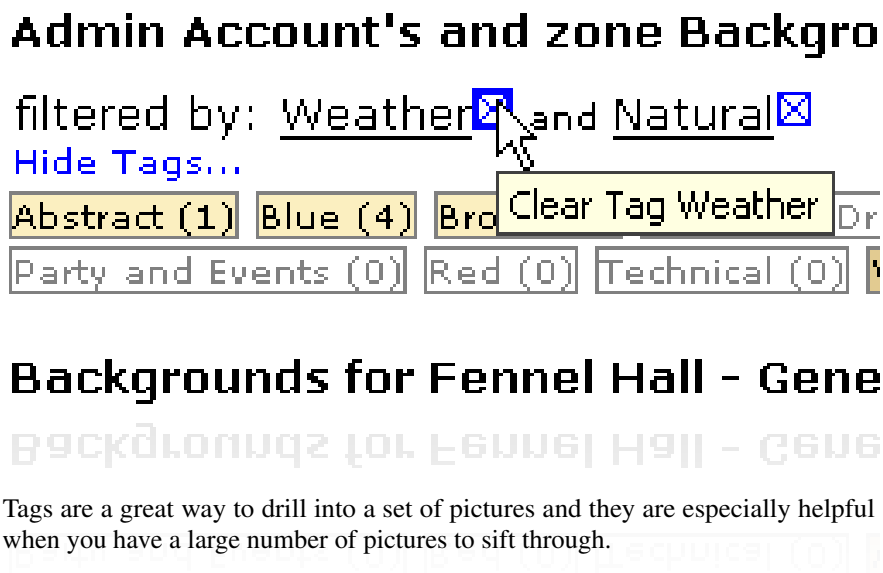
One of our favorite features of Carousel is what we call the *tag pile*. The tag pile is. . . a pile of tags. Actually, it's an alphabetical list of all of the tags that have been defined for the pictures within a zone. Clicking on a tag will filter out any picture that lacks the selected tag. You'll see that because you will then be looking at a sub-set of all of the available backgrounds, tags that are no longer valid will be grayed out. As you can see in figure 6.9, there are three colors for tags:

Dark Brown : Tags that you have selected.

Light Brown : Tags that are selectable.

Light Grey : Tags that are not selectable because no pictures or backgrounds match the current filter.

FIGURE 6.10: Clearing a Tag



Tags are a great way to drill into a set of pictures and they are especially helpful when you have a large number of pictures to sift through.

We cover the task of adding tags to backgrounds and pictures in chapter 19 on page 179, *Managing Media*

If after selecting a tag you decide that you no longer want to include it in your filter, you can click the ⊠ next to the list of selected tags at the top of the media picker.

6.7 Common Icons and Their Purpose

This section includes the common icons that you will see throughout Carousel.

Move Size : These four arrows are used for two purposes: to move a graphic element or to resize one. When it is used to resize, you resize from the bottom right. Clicking the right arrow widens the element and the bottom arrow makes it taller.

Color Wheel : This icon opens a color palette, used to change an element's color property.

Remove : This icon is visible when you are filtering by one or more tags. It appears to the right of the **filter by** label and you click on it to remove the filter that it is next to.

Copy/Move Bulletin : Used when you want to copy or move a bulletin, either to another zone or within this zone. It is also used to move a bulletin to the saved or stale bulletins list, which we talk about in chapter 18 on page 167, *Managing Bulletins*.

Delete Bulletin : To delete a bulletin completely, use this icon.

Select All : This little arrow appears above lists with checkboxes preceding each item. Once you click it, it selects all items in the list. If they are already selected, it will deselect them.

Edit Bulletin : Once a bulletin is made, you can edit it by selecting this icon.

This icon is also used to edit a group of bulletins. You can change the display name for the group and you can change each bulletin's on/off time within the group.

View Full Screen : This icon, and another variation of it, appears when you have the option to magnify a preview in another window.

Refresh : This appears when a preview may be refreshed. Generally, this happens after you have edited a text box when making a bulletin.

Spell Check : Carousel includes a spell checker. Clicking this icon will automatically check the spelling of all fields in the bulletin that you are editing.

Edit Template : To edit the template of a bulletin that you are making, you can click this icon. If you would rather make minor edits, you can try the quick-edit palette, described in section 13.2 on page 104, *Editing and Creating Bulletins*.

Un-group : When bulletins are grouped together, you can break off each slide in the group by clicking this button.

7 Setup Basics: Step-By-Step

In this section, we walk through the process of configuring your Carousel system.

Sorry to repeat ourselves, but, it is absolutely necessary that you understand channels and zones and how they work on your system. You will make decisions during this section that will take a large amount of time to undo. Read chapter 2 on page 19, *The Essentials of Carousel*, if you have not done so already.

To set up Carousel, you'll have to log in with an account that has full access to Carousel. Typically, the *admin* account is used for this purpose. We covered the login process in section 6.1 on page 51, *Logging Into Carousel*.

Once you are logged into Carousel, you may be greeted with a menu that looks much like figure 6.2 on page 52, because there are no zones in a fresh Carousel system. In this case, the main menu is blank.

If you ordered a Tightrope Creative Channel, you may follow along in this chapter, taking note of the steps and adjusting your system's settings as necessary, including changing the name of your channel and zones. Also, your Creative Channel came with instructions for adjusting most of the settings that you would need to set, so you can use that guide as well. You will not, however, want to follow *all* of the steps in this chapter, as you'd wreck the creative channel that you purchased if you did.

7.1 Configuration Menu

Main Menu: Configure

Assuming that you do have a system that has not yet been set up, click on the *Configure* button to the right of the status bar.

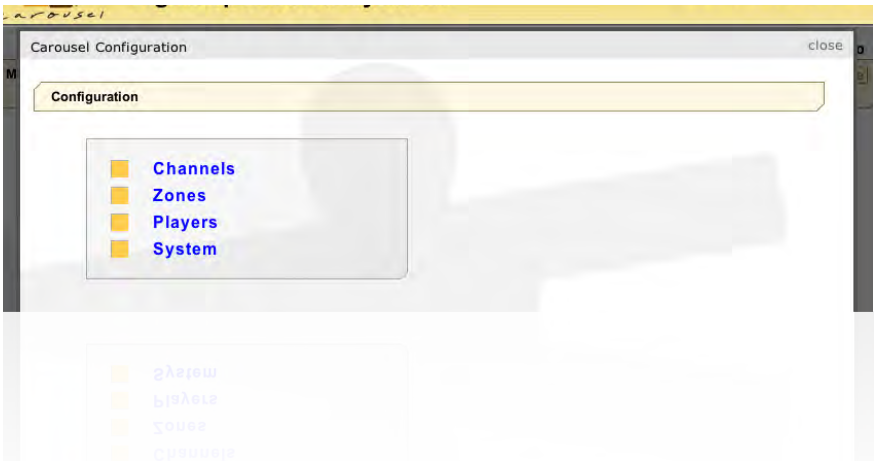


FIGURE 7.1: Configure Main Menu

7.2 Create Your Zones

Once you have logged in and navigated to the *Configure* menu, your next step will be to create and configure your system's zones. At this point, you could make your channel first and come back and add zones after you've created them. Instead, we

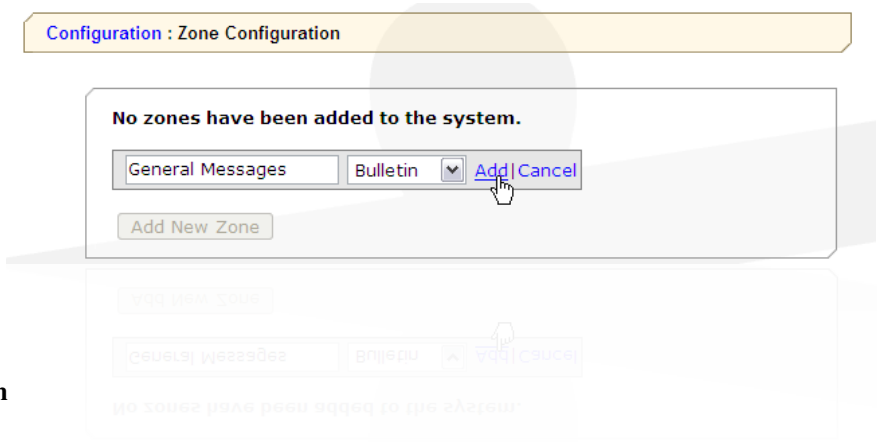
will choose to make the zones first, define our channels and then place our zones on those channels.

Main Menu: Configure: Zones

Step 1: Click on the *Zones* menu item.

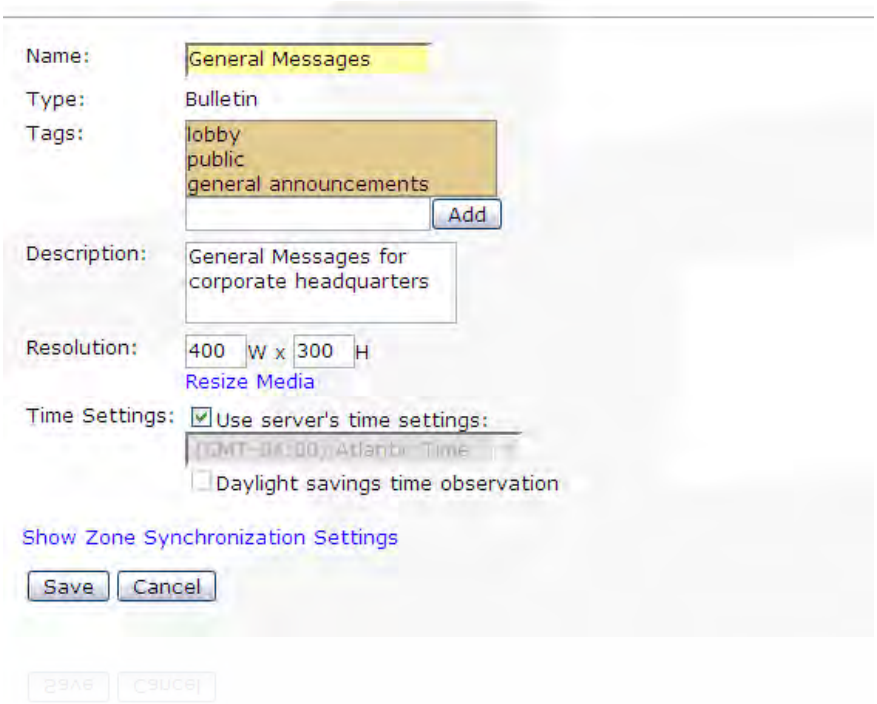
Step 2: You will see an empty list where you can add zones. Click the **Add New Zones** button and type in the name of your zone. Select the type of zone that you want to create: Bulletin, crawl or full screen alert. We explained each type in section 2.4.5 on page 24, *Bulletins*. When you're finished, click the add link (figure 7.2).

FIGURE 7.2: Adding Zones



7.2.1 The Zone Properties Form

FIGURE 7.3: The Zone Properties Page



Main Menu: Configure: Zones <*Zone Name*>

Click the name of zone that you just added and you will see it's properties form, illustrated in figure 7.3. The following steps will help you edit the zones properties:

Step 1: Re-edit the name as needed.

In larger installations it is a great idea to prefix zone names with the channel that they will be on, *if they will only be on one channel*. For example, "`Library-`". If they will be on multiple channels, picking some other prefix might be appropriate, such as "`Non Org Info-`" or "`Org Wide-`".

Step 2: Tag the zone as needed. If no tags exist or you need a tag that does not yet exist, add it to the **Tags** field and then click the **add** button. You can add more than one tag at a time, by simply entering commas between them

If you want to select multiple tags, hold down the *control* key, or *shift* on the Apple, and click the additional tag. This will keep your original selection while adding the new one.

Step 3: Type in a description. This should describe the purpose of the zone and, if known, where it will be seen.

Step 4: For bulletin and full-screen alert zones, choose the size of the zone, in pixels. *This step is incredibly important to get right!* This is where all of your planning comes into play as knowing the correct dimensions of the zone will determine the size of all of the media and templates that are created within it. If you get it wrong, then you will have to redo everything or resize all of the media within, which may reduce quality.

Crawl zones don't have dimensions. They go on the top or bottom of a channel. The channel determines the fonts and colors for any zones that appear. See section 7.3.3 on page 65, *The Crawl Properties Form* to learn how to adjust the crawls appearance on a specific channel.

Step 5: If you're walking through these steps for the first time, the **resize media** link will be of no help. It is for when you mess up the size of a zone, add a bunch of media, reset the size of the zone and now want to make all of the media conform to the new size.

Step 6: The **Use server's time settings** check box locks this zones time settings to that of the Carousel server. If the zone is in another time zone, then uncheck this box and choose the time zone for the geographic location that these zones will be displayed in. That is, if your zone is used in the lobby of the Bangalore, India office, go ahead and select "`5:30+`".

Step 7: The items hidden by the **Show Zone Synchronization Settings** tab are outside of this walk-through. See section 11.1 on page 95, *Synchronizing Zones* for detailed information on synchronizing zones.

Step 8: When you're finished, click the **Save** button.

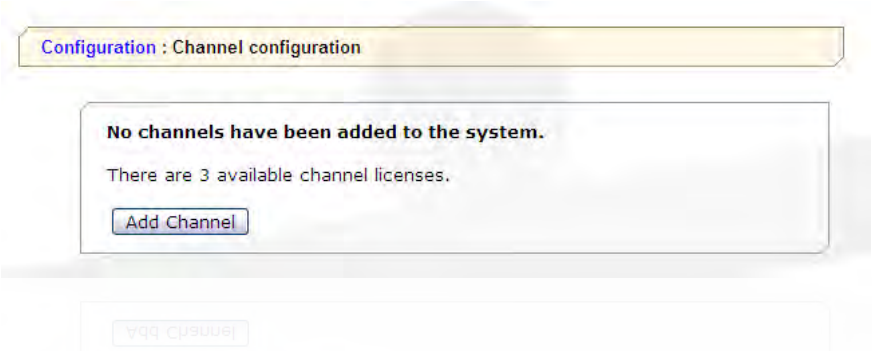
Step 9: Add additional zones by going back and repeating from Step 2 until you are finished.

7.3 Define Your Channels

Main Menu: Configure: Channels

Now that all of your zones have been created, we're ready to define the channels that your system is licensed for. If you are coming to this part of the manual from setting up your zones, a process that we did in the previous section, then you can navigate back to the main configuration screen by clicking on the *Configuration* link at the top of the screen. Otherwise, click the *Configuration* button on the status bar of Carousel's main menu. Then click the *Channels* menu item.

FIGURE 7.4: No channels are defined when a system is first installed.


Configuration : Channel configuration
No channels have been added to the system.
There are 3 available channel licenses.
Add Channel

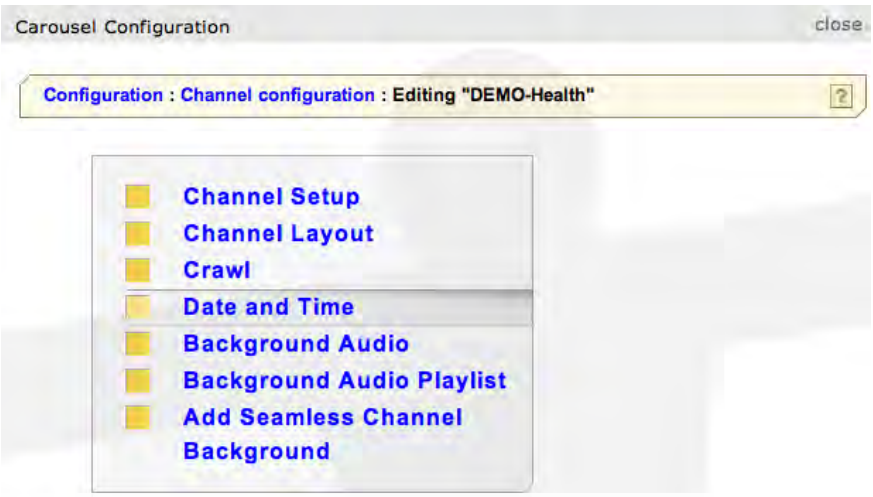
Execute these steps to define the channels in your Carousel system:

Step 1: In a fresh system, you'll see no channels defined, like in figure 7.4. In this example, you see three channels ready for action. Your system might have fewer or more. Click the **Add Channel** button to start the configuration of a channel.

Step 2: Your new channel will be called "`New Channel`" with a handy star "`*`" after it, to let you know that this is the one that was just created. Click the title, which is a link, which opens the **Channel Setup Form**.

7.3.1 The Channel Setup Form

FIGURE 7.5: The Channel Configuration Editing Menu



Main Menu: Configure: Channel Configuration: Editing <*Channel Name*>: Channel Setup

In *Channel Configuration*, you'll see the menu in figure 7.5. We'll start with the first menu item and click *Channel Setup* to edit your channel.

Step 1: You will see the form in figure 7.6 on the facing page. Name your channel in the **Name** field. Remember to name it something that will remind you of the location of the displays that are addressing this channel.

Step 2: If this channel is to have a crawl zone associated with it, then choose that crawl zone in the pop-down labeled **Subscribe to Crawls from zone**.

Step 3: If the channel is to have one or more full-screen alert zones, click on the **Click here to configure subscriptions** link.

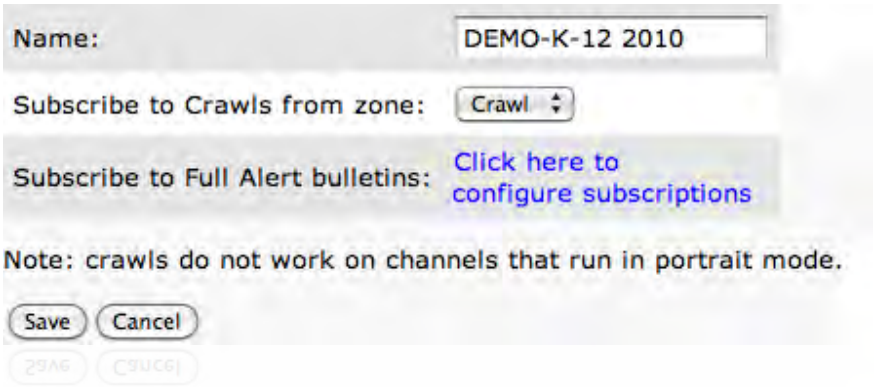


FIGURE 7.6: The Channel Setup Form

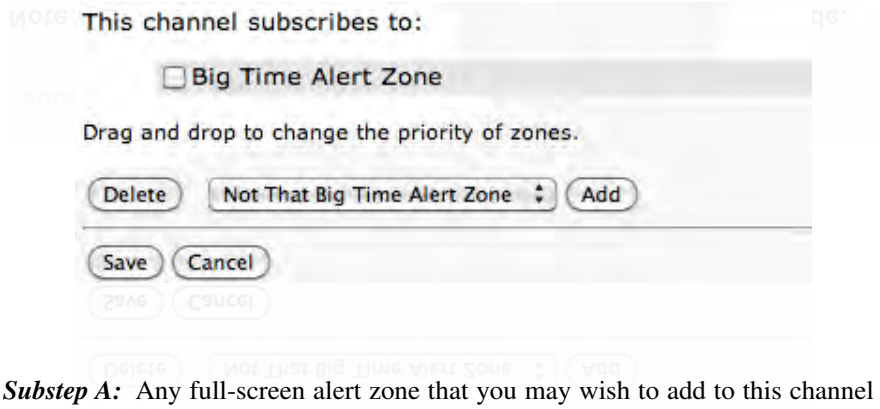


FIGURE 7.7: Adding full-screen alert zones to this channel.

Substep A: Any full-screen alert zone that you may wish to add to this channel may done on this form, shown in figure 7.7. Select all of the zones from the pop-down list and click the **Add** button. Keep repeating until all of the full-screen alert zones have been added.

Substep B: Full-screen alerts are prioritized from top to bottom. That is, if both the first and the second zones have bulletins in them, then the bulletins in the first zone in this list will be shown, but not any of the zones beneath. Just drag each item around on the list as needed to re-order the list.

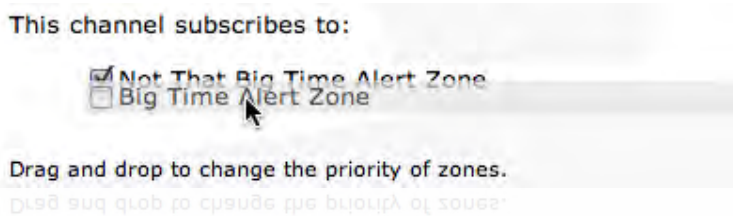


FIGURE 7.8: You can re-order the list by dragging and dropping the items.

This way, you can have a special full-screen alert zone that is used for emergencies and other zones that you use just to override the normal display. If an emergency happens, even the other full-screen alert zone's bulletins will be overridden.

Substep C: If you've added a zone that you didn't mean to, just click the checkbox next to the name and click the **Delete** button.

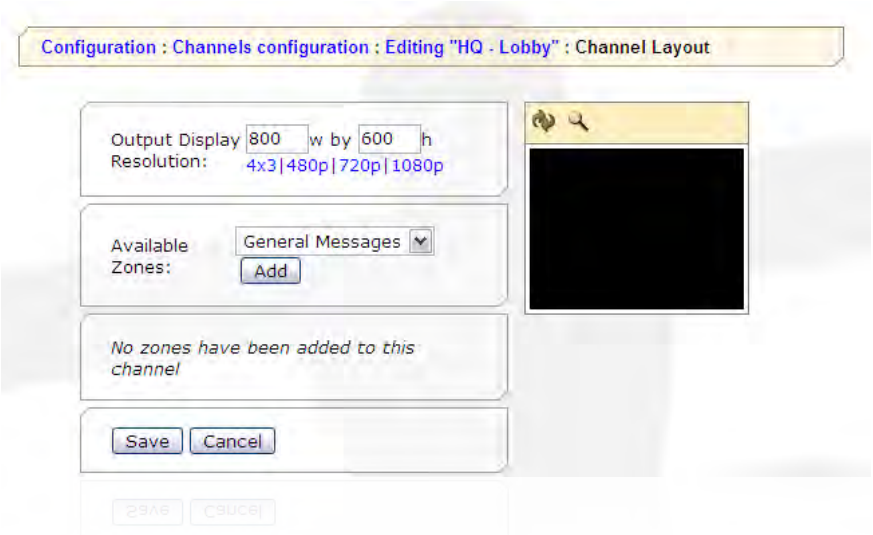
Substep D: When you're done, click save and the new settings for the full-screen alerts on this channel will take effect.

Step 4: To save your changes for the channel's setup, click the **Save** button on the *Channel Setup* form.

Due to technical limitations, Carousel does not support running crawls on a display configured in portrait mode. It will load and won't crash, but it will not look good.

7.3.2 The Channel Layout Form

FIGURE 7.9: The Channel Layout Menu



Main Menu: Configure: Channel Configuration: Editing <*Channel Name*>: Channel Layout

Next, we will edit the channel's layout, which defines the placement of each zone that will use this channel. To begin, click the *Channel Layout* menu item from the *Channel Configuration* (figure 7.9) menu and follow the steps below:

Step 1: First, choose the channel's resolution, which will match the video output of the Carousel player(s) that are addressing it in the **Output Display** fields. Common resolutions are entered by clicking on the shortcuts just below the fields.

We will cover setting up a player's video output in chapter 8 on page 71, *Configuring Players*. We haven't done it yet because we don't have a channel to point it to, which is what we're doing in this chapter.

Most often, there will be one player addressing your channel. When this is not the case, keep all of the player's video outputs the same. When this is not practical, then match the resolution to the most important player's output. The other player(s) will automatically scale the channel to fill its/their display.

When you are setting up a *portrait* display, then you will want to remember to flip the width and height dimensions from what would be considered *landscape*. For example, "`1280w x 720h`" becomes "`720w x 1280h`".

Step 2: Next, we'll add one or more zones to our empty display. Pick one from the **Available Zones** pop-down list and click **Add**.

Step 3: You'll see a zone properties form appear, like in figure 7.10 on the facing page. Also, you'll see the preview window update to show you the default position where your new zone will appear.

FIGURE 7.10: Zone Properties Form in Channel Layout

FIGURE 7.11: A zone added to the preview

Step 4: Reposition and size your zones with the **Size** and **Position** fields. If you place your zone outside of the channel's boundaries or overlap another zone, you'll get a warning message. Correct these conditions before continuing.

You can select a zone to edit from the preview window by clicking on the box the represents its size and position.

Step 5: Keep adding zones until you are finished by going back to step 2 on the preceding page. Once you are finished, click the **Save** button.

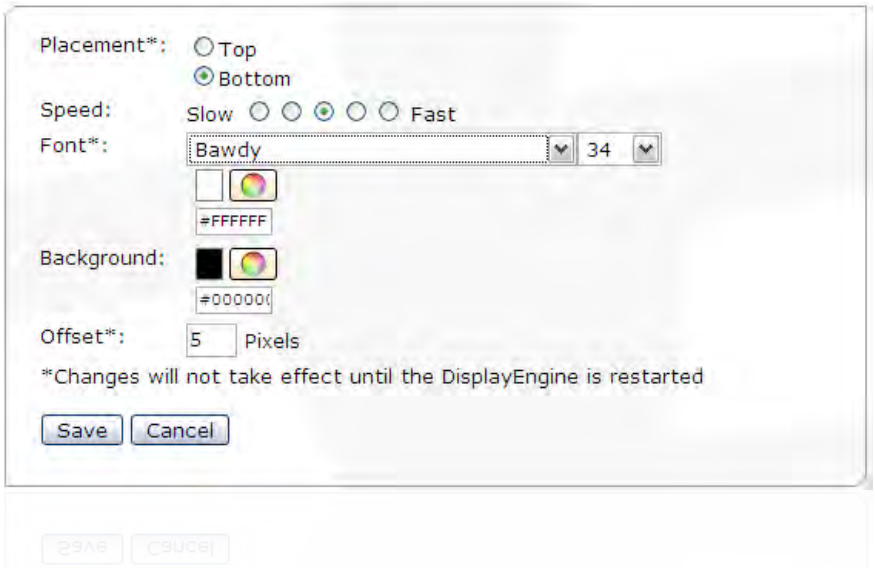
Make sure that you don't see any black on your channel's display. This would denote a hole in the channel's canvas. You want to be sure that all zones touching all edges of the channel or another zone.

7.3.3 The Crawl Properties Form

Main Menu: Configure: Channel Configuration: Editing <*Channel Name*>: Crawl Settings

If you've specified a crawl zone for this channel, select the *Crawl* menu item from the *Channel Configuration* main menu. The **Crawl Settings** form adjusts the display properties of the crawl for this channel. Review figure 7.12 on the following page as you read through this section.

FIGURE 7.12: The Crawl Settings Menu



By default, the crawl will appear on the bottom of the display. To make it appear on the top, click the **Top** radio button.

The speed is adjusted by the **Speed** radio buttons. There is no hard and fast rule as to how fast a particular player will display a crawl. The middle selection is generally considered readable. Faster speeds may result in some jerkiness on some displays.

The **Font** items adjust the color, font and size of the text. Click the color wheel button to reveal a palette of colors. Alternately, enter a specific color in the field below the color wheel, using the HTML color model.

The background of the crawl is a solid color, adjusted by the **Background** color wheel.

To adjust the number of pixels separating the edge of the monitor and the crawl, enter a value into the **Offset** field. The default value of "5" pixels is a pretty good starting point for most LCD or Plasma monitors. NTSC/PAL television screens may need a value as high as "15".

There are several stared (*) items in this form. As the note at the bottom of the form says, you will need to restart display engines addressing this channel in order for changes in these items to take affect.

Once you are finished with the **Crawl Settings** form, click the **Save** button to save your changes.

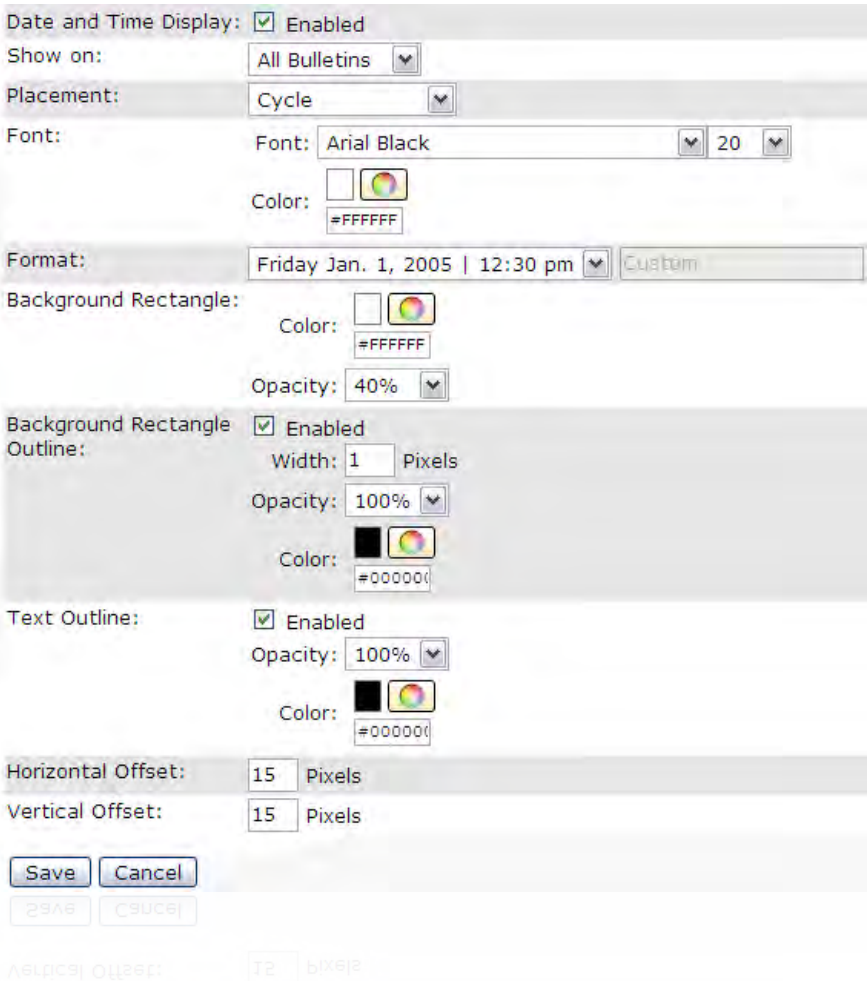
7.3.4 The Date and Time Properties Form

Main Menu: Configure: Channel Configuration: Editing <*Channel Name*>: Date and Time Settings

Carousel can display the date and time as an overlay on your channel. We can adjust the properties of this display from the *Date and Time* item in the *Channel Configuration* menu. Review figure 7.13 on the next page as you read this section.

To turn the date and time overlay on, click the **Enabled** checkbox at the top of the form.

FIGURE 7.13: The Date and Time Menu



The **Placement** pop-down will determine where the time/date display appears.

Cycling is a nice option if you are worried about monitor burn-in.

Adjust the font's typeface, size and color within the **Font** section of the form.

The **Format** fields offer some control over the format of the time and date. Pick from the presets offered or click the **Custom** option. If you pick **Custom** then make sure you select the **Show Legend** link below the pop-down. It reveals a table of formatting codes that you will need to create your custom date/time format (appendix F on page 261, *Custom Time Format Chart*).

The **Background Rectangle** section is used to adjust the appearance of the backdrop of the time and date.

If you don't want a rectangle behind your time and date, then set the **Opacity** to "0%".

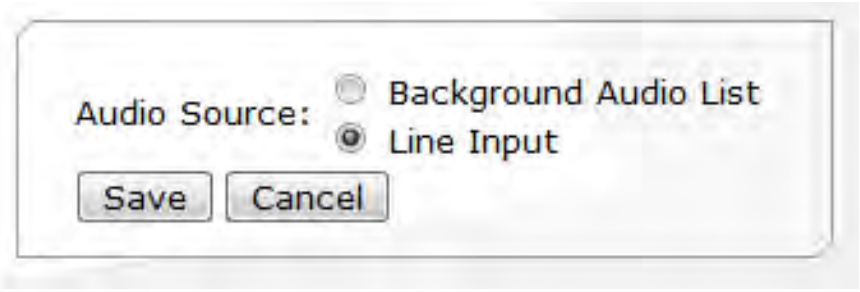
In the **Background Rectangle Outline** section, you may enable and adjust the appearance of an outline around the backdrop. The settings are self explanatory.

In the **Horizontal Offset** and **Vertical Offset** field, you are adjusting the distance

from the edge that the time and date box will appear. The default value is pretty good for most circumstances.

7.3.5 The Background Audio Form

FIGURE 7.14: Background Audio Form



Main Menu: Configure: Channel Configuration: Editing <*Channel Name*>: Background Audio Settings

If you are going to use the background audio feature of Carousel, and your Carousel player is configured to provide audio or loop audio through from an external source[1], then you will want to configure the audio settings. From the **Channel Configuration** menu select the *Background Audio* menu item.

To play out whatever is coming from the player's line input, leave it at the default settings. To loop through items in the system's background audio list (next step), then select the **Background Audio List** radio button.

7.3.6 Adding Background Audio to Carousel

Main Menu: Configure: Channel Configuration: Editing <*Channel Name*>: Background Audio List

If you selected the *Background Audio List* option from the previous section, then you will want to add audio to that list. Click the *Background Audio Playlist* item from the *Channel Configuration* menu. To add music to the list, follow these steps:

Step 1: Click the **add** button to add a new file. You'll be taken to a screen where you can upload audio files.

Step 2: Click the **Choose File** button, and the browse menu will appear. Select a single audio file to upload, and click the **Upload** button.

Acceptable file formats are listed in section 19.2 on page 180, *File Formats*.

Have a bunch of files to upload? Add them all to a .zip file, and upload the zip file!

Step 3: Once you have added a few tracks, you can alter the playback order by dragging the song's title up and down the list.

Prefer to have the songs randomized? Select the **Randomize Order** radio button.

Step 4: To remove a song from the list, click the **Delete** button.

Step 5: When you have finished, click **Save**.

[1] We cover this in the *Tightrope Server Installation Guide*.

7.3.7 Adding a Seamless Background

A seamless background is a background uploaded into Carousel that covers the entire channel. Once it is uploaded, Carousel cuts it up to fit in the zones that are placed within that channel, saving the slices for use in templates within those zones.

We cover this process in section 19.9 on page 201, *Creating a Seamless Background for a Multi-Zoned Channel*.

7.4 Previewing Your Channel

After you have designed your channel, you can preview it directly in your web browser. Head back to the Channel list in the configuration screens, and click the preview icon next to the channel name, as shown in figure 7.15.

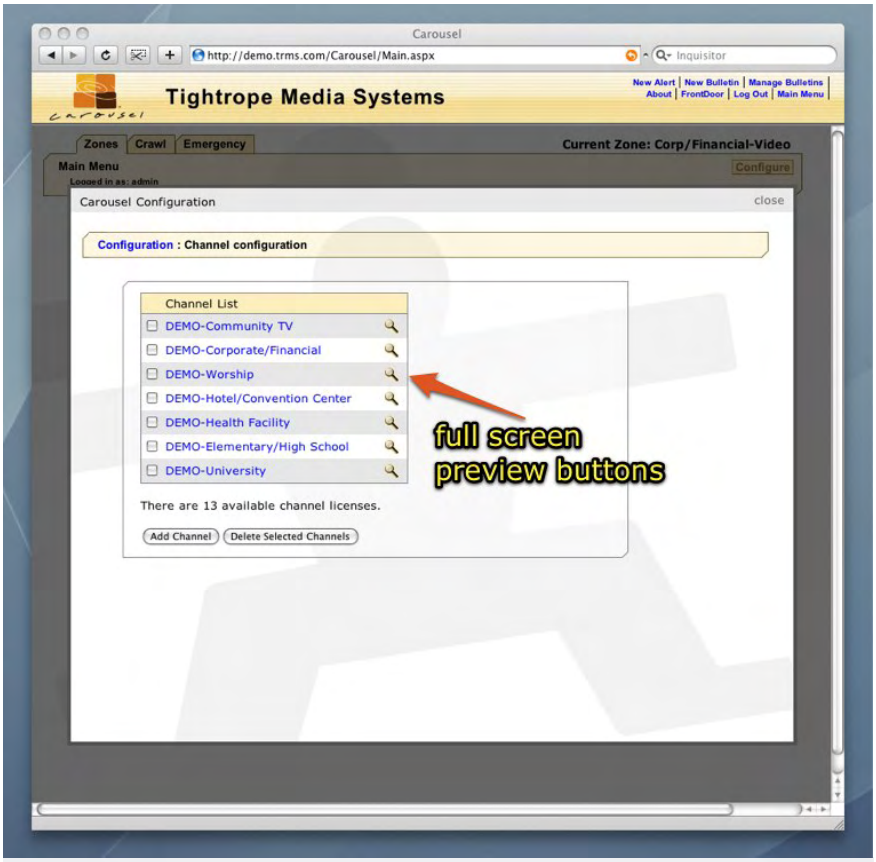


FIGURE 7.15: The channel list, with preview buttons.

A new browser window will open, and you will see the entire channel, with each zone in its correct place as depicted in figure 7.16 on the following page.

Certain bulletin types cannot be displayed in the web-based channel preview due to network bandwidth concerns. Specifically, you will not be able to see Videos, Flash, Powerpoint, or Crawl bulletins.

FIGURE 7.16: Example of the web-based channel preview.

7.5 Where We Are At

If you have followed along through this chapter then, at this point, your system is as set up as it needs to be in order to begin adding content to the system. However, we are lacking backgrounds and we haven't exactly set up the display output of our players. So while we are done with the **Configuration** menu, for now, we are not quite *"ready for prime-time"*.

The next chapter, *Configuring Players*, will guide us through the process of configuring the video display for your system.

8 Configuring Players

Every Carousel has system has at least three major parts to it: the web interface, the Carousel Service[1] and one or more Carousel Display Engines. These Display Engines and their setup are the topic of this chapter.

> Remember, all Carousel Solos and the Carousel Server include a display engine. You will need to follow the procedures in this chapter for these devices, even if you are using them as your main Carousel system, web server and Carousel Service. The Carousel Pro and Enterprise Servers do not include a display engine.

Some of the procedures outlined in this guide apply to the hardware that is a part of the Carousel Solo series and the Carousel Server. If you are making your own Carousel Players from a Carousel Software Display Engine, then setting the resolution and TV output options of your display may be different.

8.1 Closing the Display Engine

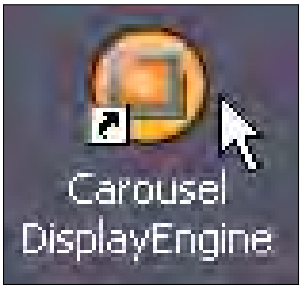
When the Carousel player is turned on, it will eventually load the Display Engine. If you are quick, you can click the *Cancel* button before it loads (figure 8.1). You will want to close the display engine before it starts so that you can perform the steps described in this chapter.

FIGURE 8.1: Closing the Display Engine before it loads

If you missed your chance to close the display engine, you can close it while it is running by *double-clicking* repeatedly until it closes. The other, more dignified method, is to hold the *Esc* key down until it disappears.

[1] This turns pages on and off and controls Carousel Players

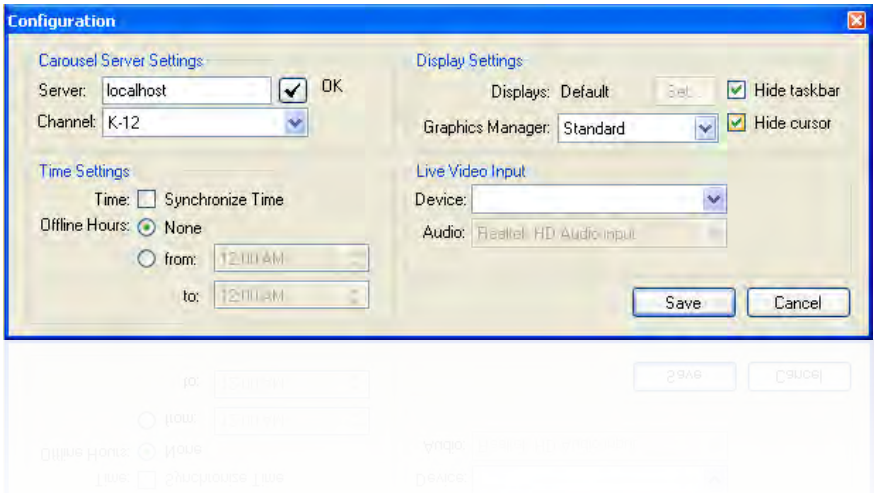
8.2 Configuring the Display Engine



When you double click on the Carousel Display icon, you will see the *Loading Carousel* splash screen appear. (figure 8.1 on the preceding page) Before the *Configuration* button counts down to *0*, click it. This will load the *Display Engine Configuration Form*, illustrated in figure 8.2.

In the following sections, we'll explore each of the four quadrants of this form: *Carousel Server Settings*, *Display Settings*, *Time Settings* and *Live Video Input*. By doing so, you will learn all there is to know about configuring a display engine for use in your system.

FIGURE 8.2: The Display Engine Configuration Form



8.2.1 Carousel Server Settings

The first field, *Server Settings*, is where you can type the address of the Carousel Server. If it is the local machine, such as with a Carousel Server or when a Carousel Solo is acting in stand-alone mode, then "`localhost`" will be the appropriate setting.

If your display engine is receiving data from a remote Carousel server, then you may type the IP address or network name of that server. To check the connection, type the server's address and then click the ☑ button to the right of the field. The Display Engine network diagnostics screen will appear and run through a series of tests to determine if a connection to the server you entered will be successful.

The connection diagnostic tests will look something like figure 8.3 on the facing page. You'll find a list of each test that was performed, plus a green check for each test that passes. At the bottom of the screen, you'll find a short description of the test results. In this case, all of our tests succeeded, so we should have no problems with our Carousel system.

If one or more of the tests fail, you'll see a screen similar to figure 8.4 on the next page. If you read the test results at the bottom, you'll see several possible reasons for why the test failed, and some possible solutions you can try to get it passing.

In the case of figure 8.4 on the facing page, the Carousel Service wasn't running on the server. After starting the Service, all the tests passed, and the Display Engine ran as expected.

Here's a list of all the tests that are performed:

FIGURE 8.3: Successful connection tests

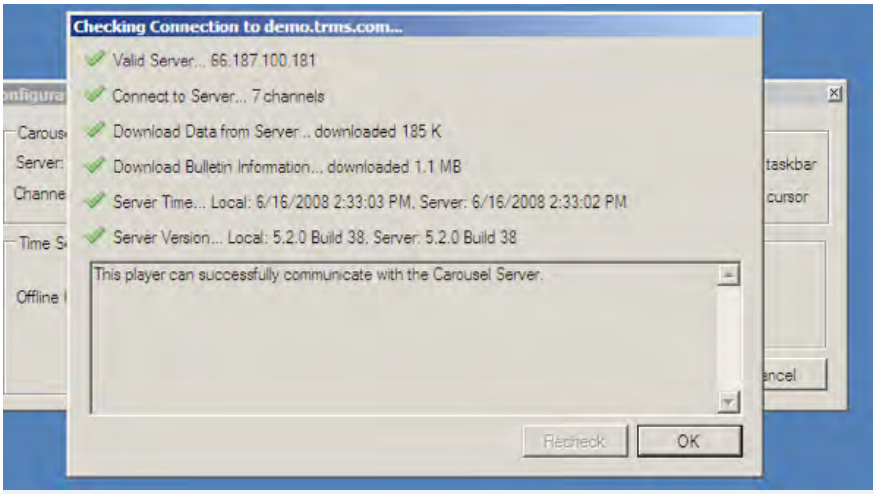
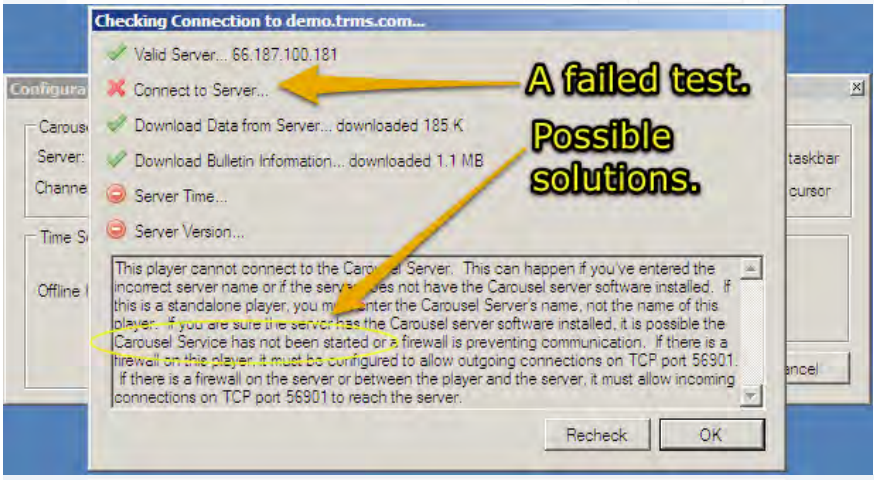

Checking Connection to demo.trms.com...
Valid Server... 66.187.100.181
Connect to Server... 7 channels
Download Data from Server... downloaded 185 K
Download Bulletin Information... downloaded 1.1 MB
Server Time... Local: 6/16/2008 2:33:03 PM, Server: 6/16/2008 2:33:02 PM
Server Version... Local: 5.2.0 Build 38, Server: 5.2.0 Build 38
This player can successfully communicate with the Carousel Server.
Recheck
OK

FIGURE 8.4: Connection tests with failures and possible solutions



1. Pings the server address that you've entered, to make sure that a computer is on the network that responds to that address
2. Connects to a Carousel Service running on that address
3. Downloads some data from the Carousel Service
4. Downloads some data from the Carousel Web Server
5. Checks the time on the server and compares it to the Player's system time (If these times are too far apart, bulletins might not appear on screen as you'd expect)
6. Checks the Carousel software versions on both the Server and Player, looking for a version mismatch.

For help on networking and a listing of required ports for Carousel servers and players, please review the *Tightrope Server Installation Guide*.

Once you have entered an address for your server and verified its connection, you

will see a list of channels that this display engine can address. Choose the desired channel from the list.

8.2.2 Time Settings

There are two settings in this section. The first is a checkbox labeled *Synchronize Time*. This instructs the Display Engine to synchronize its clock with the Carousel server. If the player is a part of a windows domain, or is otherwise receiving time synchronization, leave this unchecked. Otherwise, you can check it and the display engine will keep its time in synchronization with the Carousel server.

The second label is *Offline Hours*. You can tell Carousel to go off line, refusing all updates during a period of time each day. If your network is congested during the day and you do not want Carousel to update this Display Engine during those hours, you can enter a *from* and *to* value by moving the radio button to the *from* option. In this mode, the Display Engine will not update it while the time is *outside* this range.

8.2.3 Display Settings

This section covers advanced setup options that are used only in specific circumstances.

The first, *Displays* refers to the configuration in a dual head configuration (rare).

There are couple of important notes on this feature:

1. *Monitor Offset* is not supported by Tightrope's technical support department. This is because the official policy is that computers that are running the Carousel Display Engine should be dedicated to that task to optimize processor performance.
2. The Display Engine is a real-time program that demands a lot from the computer's processor and graphics card. It's not engineered to coexist with other applications.
3. The Display Engine will do everything it can to hide your mouse and otherwise annoy while you try to use it.

   If you do not want the task bar or cursor hidden, you may uncheck the two checkboxes to the left of the *Monitor Offset* field.
4. All graphics cards will accelerate video in a way that makes your primary monitor show the video correctly while your secondary monitor will show a black hole where the video would be if it were shown on the primary display.
5. You must have the monitor that the Display engine uses on to the left of the monitor that will display the desktop.

The second label is *Graphics Manager*. As of this writing, there are three:

Standard : This is the most advanced setting with all of the acceleration and transitions enabled. It requires Microsoft's DirectX 9.0 Pixel Shader 2.0 feature on the computer's graphics card.

Simple : This mode is for hardware that lacks Pixel Shader 2.0. It is mostly for older hardware which is running newer software.

The *Simple* mode is not thread safe. This means that it is not compatible with dual processor machines or with processors that have Intel's Hyper Threading technology.

Performance : This mode only supports cross-fade transitions and uses a less graphically intense crawl that "rolls over" to give the best visual performance.

Diagnostic Mode : This runs the display engine in a window with a list of diagnostic information that is helpful to our support department when resolving problems.

In the future, there will be additional modes added to the Carousel Display Engine. Part of the elegance of its design is that more can be added for specialized applications and as new technology is developed.

8.2.4 Live Video Input

If your computer has a video input option, such as Tightrope's *CAR-TVI*, you may select it from the *Device* pop-down list. Usually there is only one device per computer, so it will most likely be selected by default. Once you select the device, Carousel will test for compatible input options, including *Composite, S-Video* and *Tuner*. You will see them listed to the right of the pop-down list.

If a player has more than one audio device, you may select it as the audio input in the *Audio* field. Again, there is usually no need to adjust this setting.

8.3 Monitoring Your Players

For larger Carousel installations, managing several dozen Carousel Players can get a bit tricky. It's hard to know which channel they're displaying or even if they're running at all unless you're standing in front of the display. This is why we have Player Status Monitoring!

There are three ways to keep tabs on your Carousel Players: Player Status, Micro Player Status and Player Alerts. From Carousel's Configure menu, click on **Players**. (figure 7.1) You'll be presented with the Player Status, Micro Player Status and Player Alert options as in figure 8.5 on the next page.

8.3.1 Player Status

In figure 8.6 on the following page, you can see four players that are registered with Carousel, including their hostname, IP address, and the Carousel channel that each player is "tuned" to. Additionally, you can see the version of the Display Engine software, and the last time that the Display Engine checked in with the server. (Under normal circumstances, the Display Engine will check in with the server approximately once every minute.)

As you can see, this system is having some trouble. The "Main Lobby" player hasn't checked in since 2 AM this morning, the "Conference Room" player is running an old version of the software, and although the "Hallway" player *has* checked in recently, it taking a little longer than usual for the next check in to occur. Thankfully the "Back Office" player is running smoothly. Looks like there needs to be some investigation.

After plugging the network cable back into "Main Lobby" (perhaps an overnight maintenance person accidentally unplugged it), and installing the latest software on

FIGURE 8.5: Player Status and Player Alerts

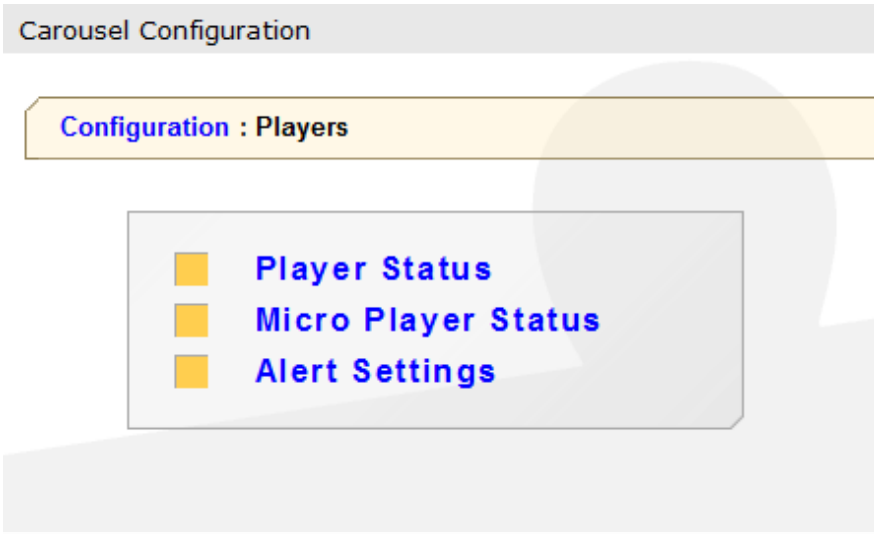


FIGURE 8.6: Player Status list with some troubled players

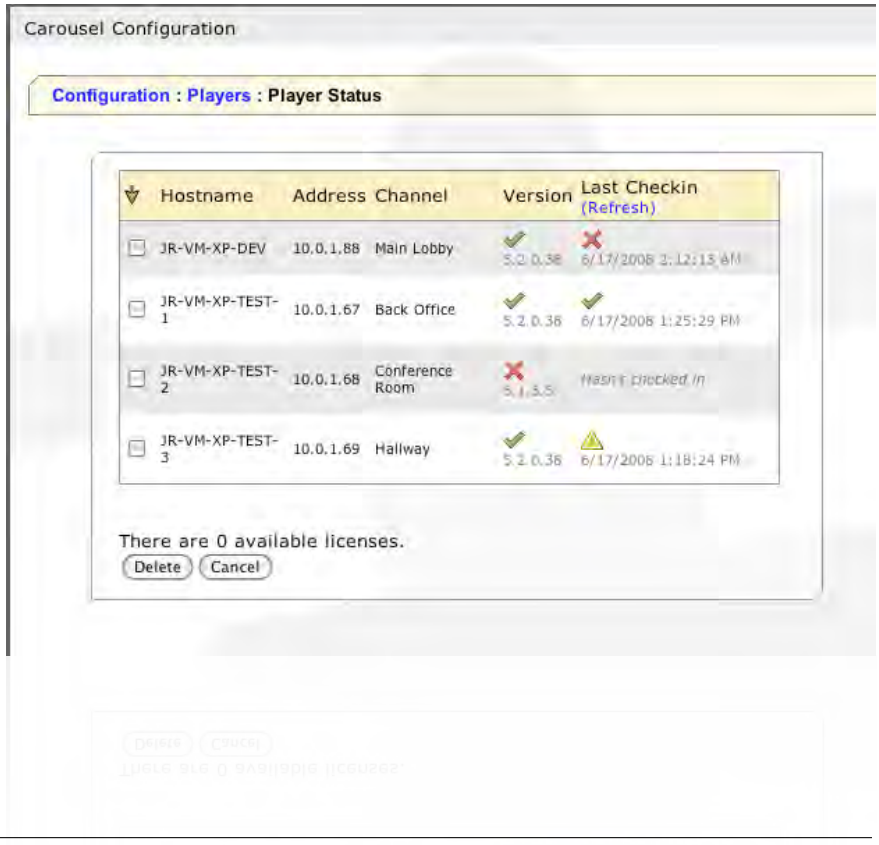
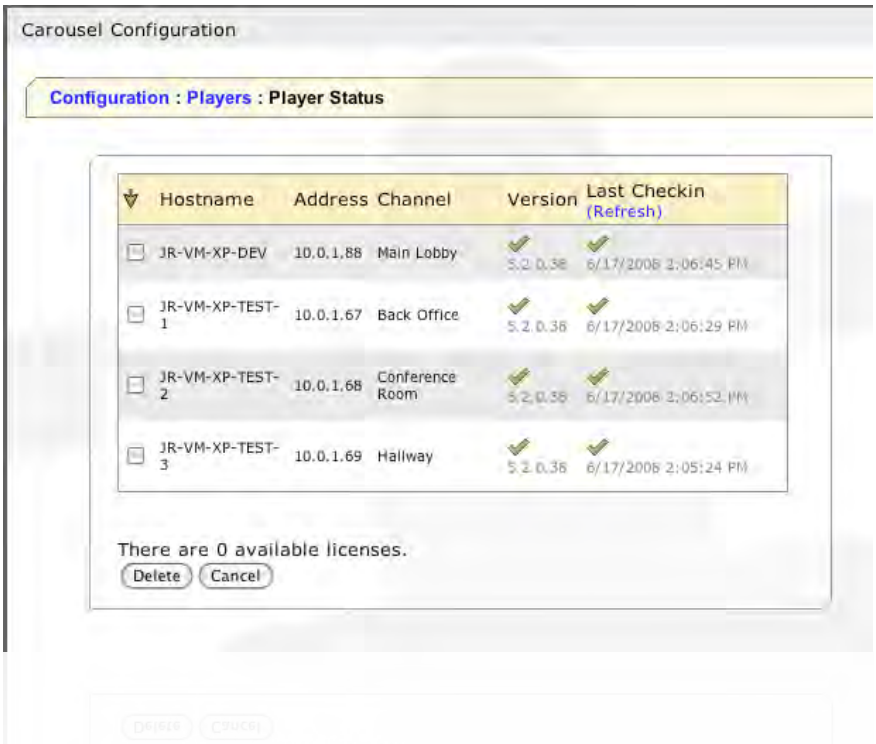


FIGURE 8.7: Player Status list with healthy players



the "Conference Room" player, things are up and running once again according to figure 8.7. Looks like there was just a network glitch with the "Hallway" player, because it has checked in again without any intervention.

8.3.2 Micro Player Status

The Micro Player Status screen is almost identical to the Player Status screen, except that it won't flag versions different from the server as being invalid. This is because Micro Players can run on different types of hardware and software, and don't need to adhere to version numbering as strictly.

8.3.3 Player Alerts

But what if you're not at your desk to view the player status list and a player gets its power cord kicked out? Enter "Player Alerts." You can tell Carousel to send you an email (or even a text message to you cell phone) whenever a player goes AWOL. Head over to the Alert Settings section, seen in figure 8.8 on the following page.

Here you can adjust the amount of downtime before Carousel decides there's a problem with a player. This is the same setting used to determine if there should be a "red X" in the Player Status screen (see figure 8.6 on the preceding page). Once this period of time elapses without a check in from a player, Carousel will send an alert email to the list of email addresses you've specified on this screen. And if you know the SMS email address for your cell phone, you can enter that address here as well and be alerted anywhere, anytime, without needing to be next to a computer.

Carousel Configuration
Configuration : Players : Alerts Settings
Alert the following people when players have the wrong version
or have not checked in for the last 15 minutes.
admin@my-company.com,
carousel@my-company.com
Seperate email addresses with a comma
Save
Cancel

FIGURE 8.8: Adjusting the Player Alerts settings distribution list.

8.4 Cached Mode

When Carousel cannot contact the Carousel Service, it will continue to operate from its cached pages. This is called *Red Bar Mode*, due to the red bar that the system puts as a warning at the top of the screen, shown in figure 8.9.

FIGURE 8.9: The red bar at the top of the display notes that Carousel cannot connect with the Carousel Service. It will run cached pages until it reconnects.

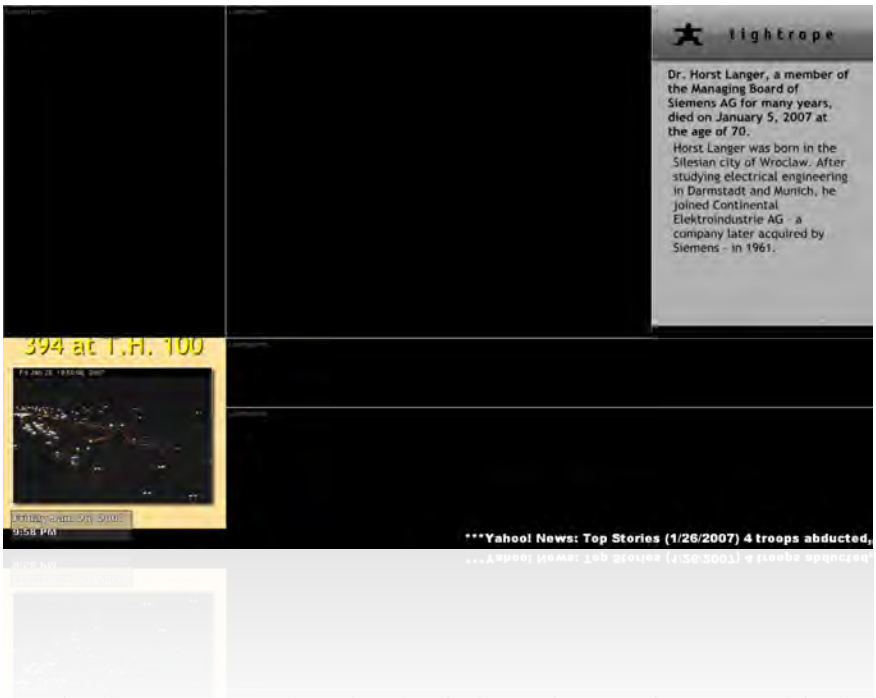
Carousel will automatically try to reconnect with the Carousel Service, so there is no need to manually restart the display engine once the network comes back online.

8.5 Loading Zones

When Carousel loads zones for display, it does one by one, as you can see in figure 8.10 on the next page.

If you forget to populate your channel with zones, or you leave a hole in the channel's palette, you can easily detect that by watching Carousel move through the process.

FIGURE 8.10: The Carousel Display Engine loading zones


tightrope
Dr. Horst Langer, a member of the Managing Board of Siemens AG for many years, died on January 5, 2007 at the age of 70.
Horst Langer was born in the Silesian city of Wroclaw. After studying electrical engineering in Darmstadt and Munich, he joined Continental Elektroindustrie AG - a company later acquired by Siemens - in 1961.
394 at T.H. 100
***Yahoo! News: Top Stories (1/26/2007) 4 troops abducted,

8.6 Not Licensed Status

Occasionally, you may see that when the display engine starts it may complain that it is *NOT LICENSED*. Typically this happens because on the Carousel server, the service started but the database has not yet caught up with it. If you wait a few moments, this condition may resolve itself.

If after a few minutes you still see the message, the system is unable to retrieve a license from the server. This might happen if you change a player's IP address and try to reconnect it before Carousel drops its registration. To fix this:

Step 1: Log into Carousel as the administrator.

Step 2: From the main menu, click **Configure** from the right of the status bar.

Step 3: Click **Players** and then click **Player Status**.

Step 4: Click the checkbox next to the Display Engine that you would like to unregister.

Step 5: Click the **Delete** button.

This simply "undoes" the registration with the server, making a empty registration spot available for the next player that connects to the server.

Adding any additional hardware/accessories to your machine will often invalidate the license code therefore causing a the system to become *NOT LICENSED*.

8.7 TV Output - 300R

There are a few procedures related to video output which are relevant only if you are using the composite output on your Carousel Server or Solo 300R. The composite output is located on the back of the computer, which is illustrated in the *Carousel QuickStart Guide*.

! → Solo 100 and 200's do not include a television output option.

8.7.1 Enabling the TV Output

By far, the most common technical support question that we receive is, *"I've got no video output! What happened?"*

The answer is that your system automatically disabled the video output because it did not sense a monitor or other 75Ω load.

To re-enable your video output:

Step 1: Plug in a 75Ω load. This could be a monitor, routing switcher or any other video device.

Step 2: Restart your server *or...*

Step 3: Right-click on the NVidia Settings icon in the system tray.

Step 4: Select *nView Display Settings*.

If you do not see an option for *nView Display Settings* your video card is not detecting enough resistance on the composite output. Verify connectivity and restart your machine.

Step 5: Select *Clone*.

Step 6: Select the option that shows your TV + VGA monitor. Your monitor may be named by its vendor or it will be called *Analog Display* (figure 8.11).

FIGURE 8.11: Right-click the NVidia icon from the system tray and navigate through the menu to select TV + Analog

Step 7: The video output will now be active.

If *nView Display Options* is not available, it is probably because the graphics card does not sense a connection on its video output. Check your cabling.

8.7.2 Adjusting the TV Output Settings

A Carousel machine's video output is adjusted by the factory to produce acceptable video levels for TV applications. If these become lost or need to be adjusted, follow the steps in this section.

Step 1: Select *TV Output* by right-clicking on the Nvidia icon in the server's system tray.

Step 2: The dialog box appears, shown in figure 8.12.

Step 3: Use the sliders to adjust the video levels. The *Overdrive* option locks the brightness and contrast together. By default, this option is activated and the adjustment is set to about one third. This setting produces a video signal where pure white is about 90 IRE[2].

Use *Overdrive* to keep video levels legal

Step 4: Use the arrows in the *Screen positioning* tool to adjust the size and position of the TV output.

FIGURE 8.12: The NView TV Output dialog box. Notice that the *Overdrive* box is checked.

[2] From Wikipedia: An IRE is a unit used in the measurement of composite video signals. Its name is derived from the initials of the Institute of Radio Engineers. A value of 100 IRE was originally defined to be the range from black to white in a video signal. A value of 0 IRE corresponds to the zero voltage value during the blanking period. The sync pulse is normally 40 IRE below the zero value, so, peak to peak, an all white signal should be equal to 140 IRE.

8.7.3 But My Video Is Black and White!

If this happens, follow the instructions from section 8.7.2 for navigating to the *TV Output* dialog. Note the settings that are there and click on the *Restore Defaults* button.

This will clear out any misconceptions that the graphics card may have received about your setup and restore the color to your display. You will have to restore your settings once you have done this, because this procedure will revert your system back to Nvidia's defaults, which are generally set to a video level that is too hot for broadcast.

8.8 TV Output - 310R

The Carousel 310R hardware does not have a natively built in TV output. Instead, an external ConvertDVI hardware unit to provides both a composite and SDI video output. The configuration needed is quite simple!

8.8.1 Physical Configuration

Step 1: Plug in the Diplay Port to DVI adapter.

Step 2: Plug the white Matrox cable into that DVI as well as into a USB port.

Step 3: If you plan to use embedded audio (SDI) through the ConvertDVI , Plug the mini in on the white Martox cable into the green line out jack on the back of the Carousel unit.

We tell you to use the Display Port as it can only output DVI and can not be converted to VGA whereas the DVI on the video card can be converted to VGA (for KVM/dual display use).

8.8.2 Software Configuration

You will first need to set the output resolution to the unit. Info on setting resolutions in Windows 7 can be found here:

http://trms.zendesk.com/entries/20155652-how-to-setup-multiple-outputs-on-a-carousel-running-windows-7

You will want to set the output running to the ConvertDVI to 800x600 and make sure it is set as the primary monitor.

At that point all that is left to do is make sure that the Convert DVI control panel has the correct settings. This menu is launched from the task bar near the system clock. Look for the purplish circle icon.

The output type should be set to whatever output you running out of the Convert DVI unit.

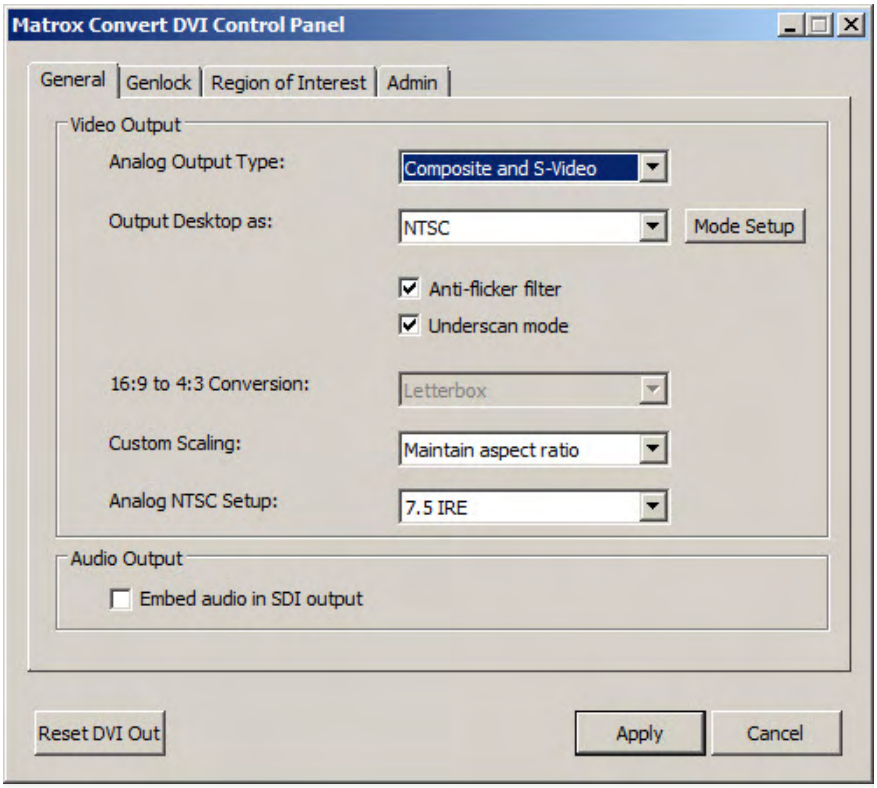


FIGURE 8.13: The ConvertDVI Control Panel

8.9 Adjusting the Video Resolution

This section covers two major topics: adjusting the video resolution for plug and play monitors and adjusting the resolution for monitors that do not provide accurate settings for the graphic card driver.

If you are operating your system with a standard television monitor in 4x3 mode, then the default setting (800x600 pixels) is the best for this configuration.

If you plan to operate your system in 16x9 mode, then you will have to consult with your monitor's guide for the display's optimum resolution. If you plug your monitor into Carousel and it does not allow you to select the correct resolution using the Windows *Display Properties* resolution slider, you will have to hand enter your monitor's resolution and sync rates. This process is covered in section 8.9.2 on the following page.

8.9.1 Standard Resolution Adjustments

Generally, if you are running Carousel in 4x3 mode there is no need to adjust the display's resolution. It runs in 800x600 and this is optimal for all applications.

Before you proceed, be sure that your display is *directly* plugged into the Carousel system. Do not plug it in through an active balun, routing switcher or other video distribution system.

If you need to adjust Carousel's screen resolution, you may do so by right-clicking

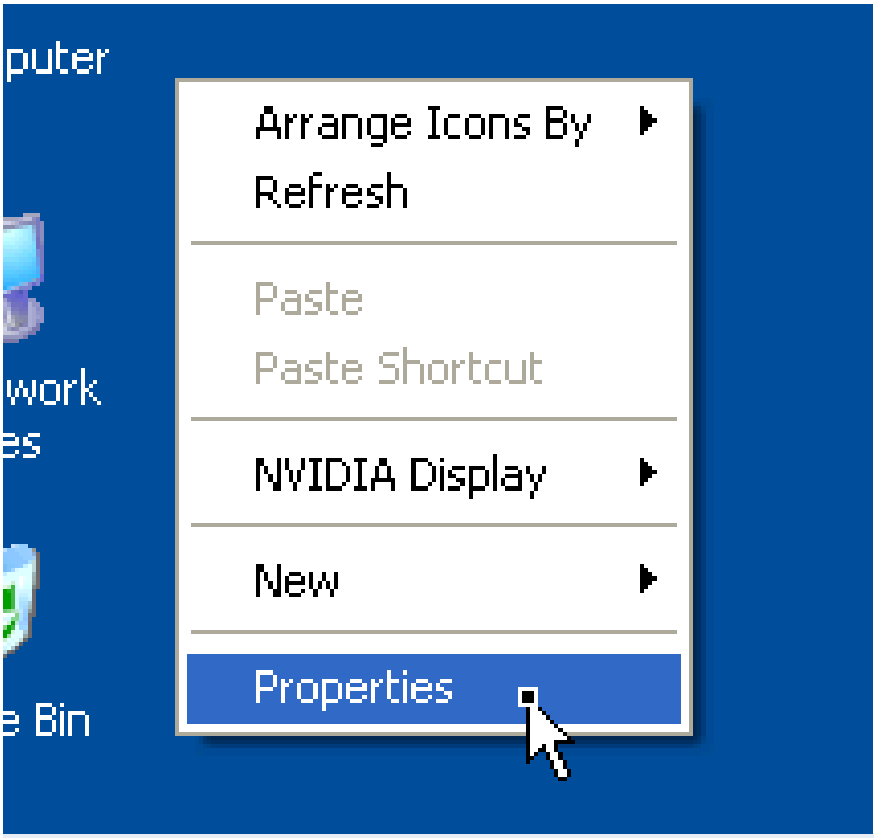


FIGURE 8.14: Select *Display Properties* from the player's desktop

on Carousel's desktop[3] and clicking on *Properties*.

This opens the *Display Properties* dialog box. Click and drag the *Screen Resolution* slider until the native resolution of your display appears, as shown in section 8.15 on the next page.

8.9.2 Custom Monitor Adjustments

Tightrope is not responsible for any damages to your display as a result of following the procedures outlined in this section. Manually entering sync and resolution settings has the potential to permanently damage your display if it is done incorrectly!

If you are utilizing an LCD or plasma monitor, there is a chance that you may need to specify a resolution that is not selectable using the procedure outlined in the previous section.

Check to see if there is any software that came with your LCD or Plasma display. This may include the monitor definitions for your display and prevent you from having to set a custom resolution.

Check with the display's documentation for the specifications related to the monitors

[3] If the display engine is running, double-click until it closes.

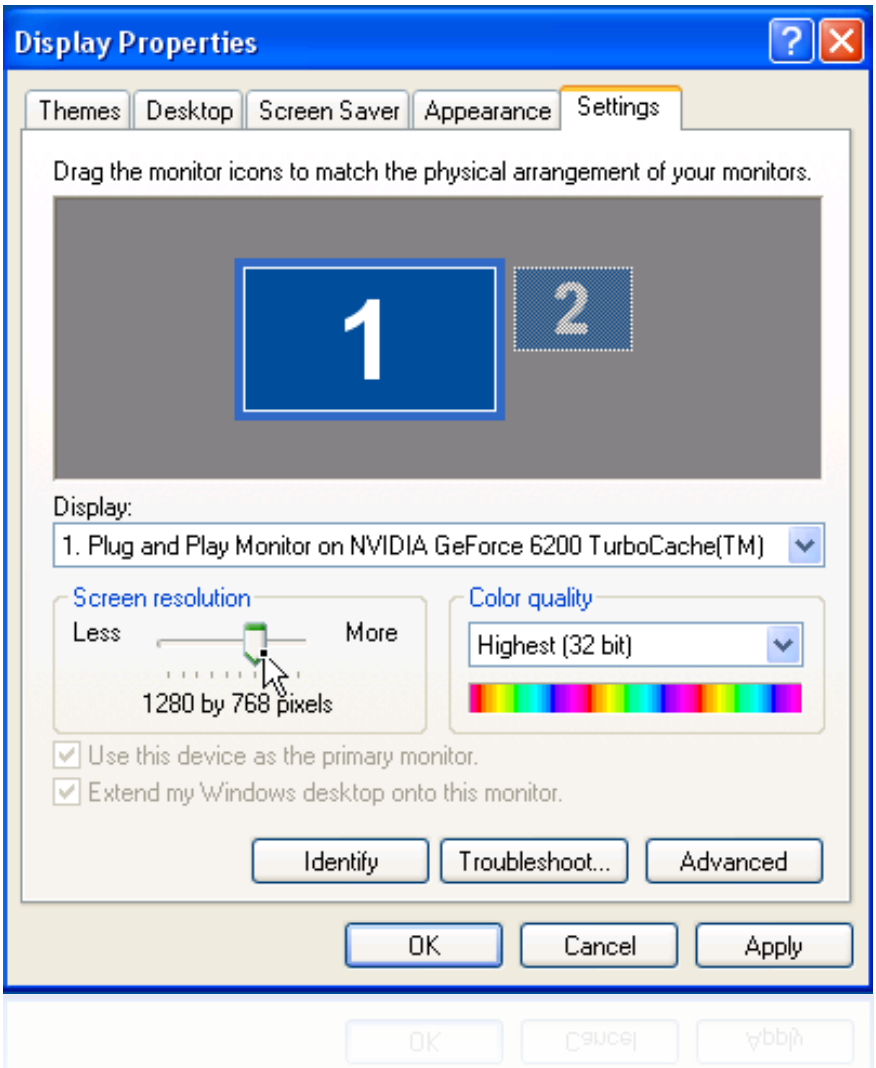


FIGURE 8.15: Loading the Display Properties Dialog

resolution and sync. Take careful note to look for the *native* resolution of the display. All displays are able to sync and display a variety of resolutions. If you select a non-native resolution, the display's processor will have to re-scale the image, which will degrade the image quality.

Armed with this information, open the *Display Properties* dialog, as we did in the previous section. Click on the *Advanced* button.

You will see tabs at the top of the dialog box. Click on the tab that starts with the word *GeForce*. On the left you will see a tab slide out, providing additional menu options. Select *Screen Resolutions & Refresh Rates* (figure 8.16 on the following page).

BE CAREFUL WHEN ADDING CUSTOM RESOLUTIONS!!

Click the *Add* button. You will get a tremendously wordy warning about how you can *destroy* your monitor's display if you enter the wrong information into the next dialog box. *Heed this warning!* Generally, monitors have built-in safe guards to protect them against "out-of-bounds" monitor resolutions and sync rates, but do not rely on these. *Tightrope is not responsible for any damages to your display.*

The dialog shown in figure 8.17 on the next page will appear. Enter your display's

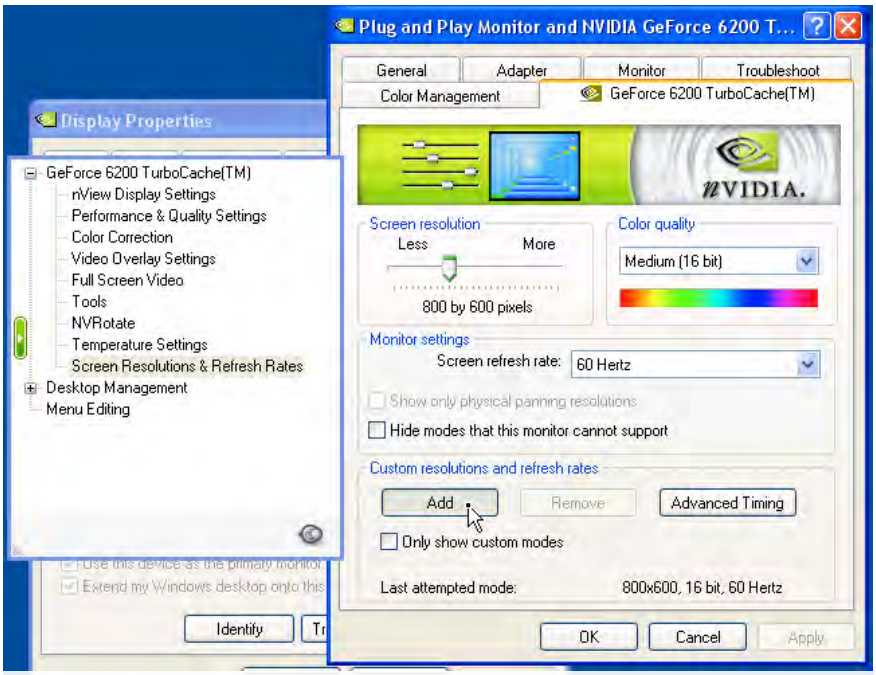


FIGURE 8.16: The nVidia Advanced Menu

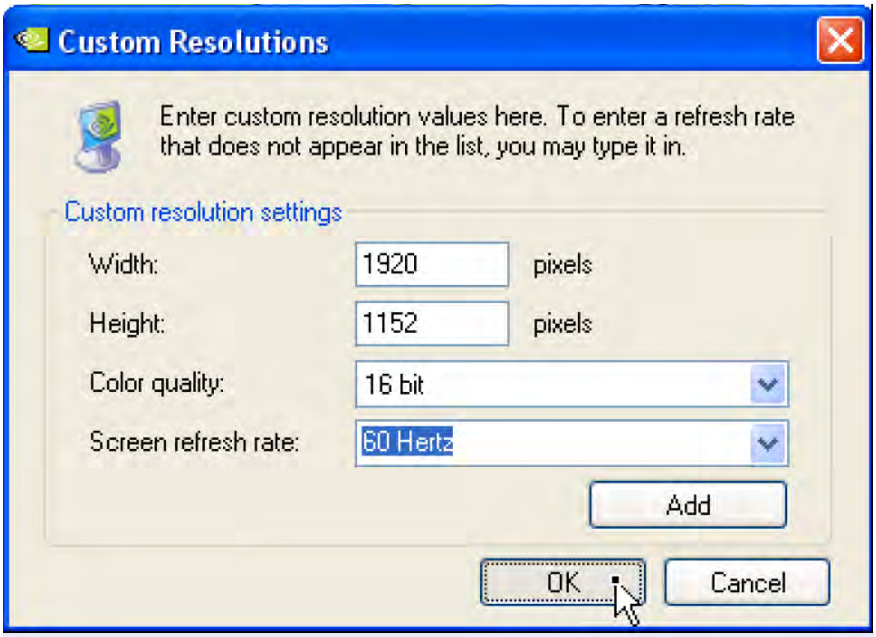


FIGURE 8.17: Adding a Resolution

resolution information into this dialog box. After clicking *OK*, you may wish to click the *Only show custom modes* checkbox, which will make it easier to pick the resolution that you just added.

Select the new resolution using the *Screen Resolution* slider at the top. Click *Apply* to view the results.

The display should look centered and fill the screen. If it does not, try using the monitor's positioning controls to center it. If it still seems out of adjustment or the display is corrupted, you may need to use the *Advanced Timing* dialog to adjust some of the sync properties. This is very rare and should not need to be changed, but it is the last option if you are unable to get the display to appear correctly.

8.9.3 Setting up a 9x16 Display

Carousel may be configured for 9x16 display, where the LCD or plasma monitor is put on its side for a portrait display.

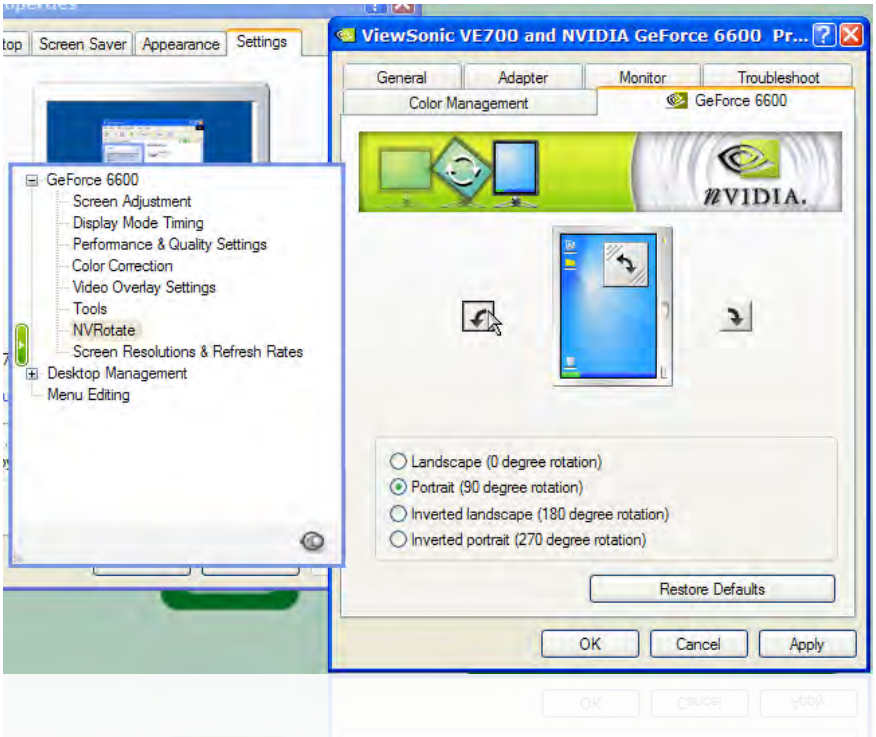


FIGURE 8.18: Rotating the display

To accomplish this, simply navigate to the *NVRotate* menu from the *Advanced* settings in *Display Properties* (figure 8.18).

Use the arrows to rotate the display until the illustration matches the way your monitors will be mounted. After you click *OK* the video output will be adjusted so that everything will appear right-side up when the monitor is rotated.

9 Adding Content

Now that you have established your system's configuration plan and have perfectly executed that plan in the previous chapter, you are ready to begin adding some meaning to your Carousel system. After all, what good is configuration without content to display?

In this chapter, we import the default graphics into our Carousel system. Even if you do not plan to use the graphics that are included with Carousel, reading this chapter will be helpful in creating your own background and media packages.

9.1 Zones and Aspect Ratios

In older Carousel systems, a zone was equal to a channel. Therefore, it was a safe bet that loading up a system with default backgrounds would result in an attractive starting point for the new owner.

→ section 2.4.1 on page 20, *Displays*

With Carousel Release 5, zones have changed that assumption. Now, zones can not only be 16x9 or 4x3, they can also be very tall, very wide, 9x16, etc.

> "The aspect ratio of an image is its displayed width divided by its height (usually expressed as "x:y"). For instance, the aspect ratio of a traditional television screen is 4:3, or 1.33:1."
>
> —*Wikipedia.org*

Shipping a new Carousel system with a pre-determined zone loaded with backgrounds at a pre-determined aspect ratio seemed counter productive, so Tightrope ships each system with optional templates. Located in **D:\TRMS\CarouselMediaPackages** is a collection of backgrounds and templates that are included with every Carousel system. Each set of backgrounds comes in four sizes that are each suitable for a zone's unique aspect ratio:

9x16-Vertical : These backgrounds have very tall aspect ratios, suitable for zones that are narrow.

4x3 : This is a standard 4x3 aspect ratio found on standard television sets. Use this for all zones that use standard definition video.

Banner : These backgrounds have a very wide aspect ratio.

16x9-Horizontal : Any time you need a background for a 16x9 or 16x10 aspect ratio, use these backgrounds. They're perfect for filling an entire wide-screen monitor or any time that you have a channel that will be showing wide-screen content, such as some movies or high-definition television content.

Visit store.trms.com for many FREE channel template options!

Don't worry if your zone is not exactly the resolution or aspect ratio of any of the background or template packs. Carousel will stretch each to fill your zone, and if it is close enough, you will not be able to see that any stretching took place. Just pick the closest choice.

9.2 Uploading Backgrounds and Templates

We cover uploading media packages into Carousel within this section, even though some may find it more appropriate for chapter 19, which is about managing media. We cover it here because most often you upload content in bulk from the default media packages that come with your system.

Step 1: From the **Zones** tab at the top, choose the zone to which you would like to add content. If you only have one zone in your system, then click the first tab at the top, which will be labeled with your zone's name.

Step 2: From the main menu, chose the **Media** item.

Step 3: Click on the **Zone** tab.

Step 4: Choose **Add Media Package**.

Step 5: Click the **Browse...** button.

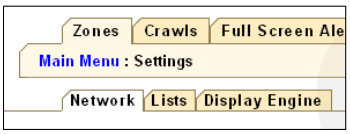
Step 6: Navigate to and select the *zip* file in **D:\TRMS\CarouselMediaPackages** that most closely matches the aspect ratio of your zone.

Step 7: Click the **Upload** button.

Step 8: You will see a confirmation that you are about to add a number of backgrounds or templates to the system. If you would like to, at this point you can have Carousel add these same templates/backgrounds to other zones in your system. Select them now and click the **Save** button.

Now any backgrounds or templates within the *zip* files that you've selected are available when you make standard messages within Carousel. If you choose not to add the a set of default templates to your zone, you will have to create your own. We cover that in section 19.7 on page 186.

10 The Zone Settings Menu



There is a separate set of zone settings, apart from those found in the **Configuration** menu. It is available from the main menu and it is called the **Zone Settings** menu. This menu addresses the day-to-day settings of a zone and some of its visual properties.

Once you click on this menu option, you will see three tabs at the top of the form. They help to categorize some of the options within this menu.

10.1 The Network Tab

The items in this tab relate to emailing administrators for notification and alternate zone outputs.

10.1.1 Email Settings

If some of your contributors will need to have their bulletins held for approval before being published, you may want to have Carousel send an email to the person that is in charge of approving bulletins.

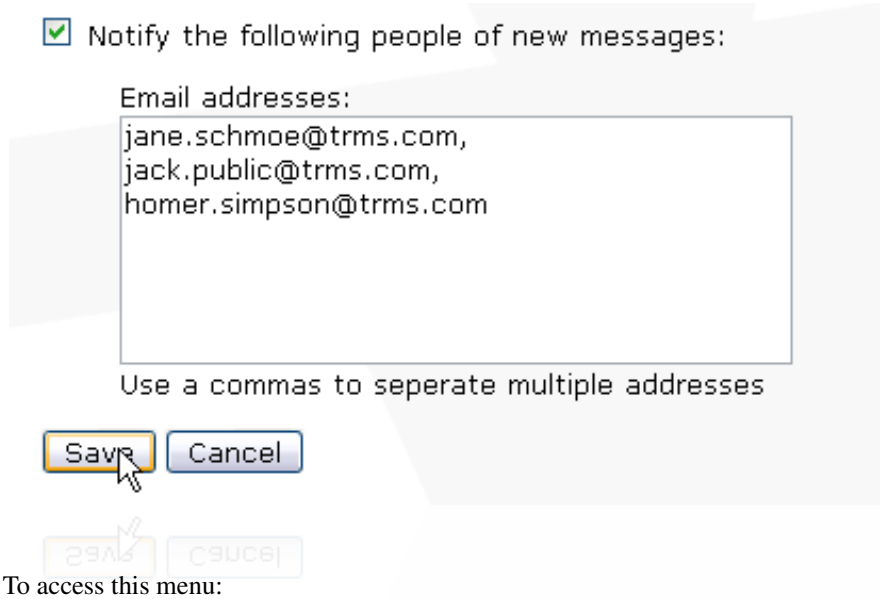


FIGURE 10.1: Email approval can be for one or more person. Just separate their names with a comma.

To access this menu:

Step 1: Select **Zone Settings** from the main menu.

Step 2: Be sure the **Network** tab is selected.

Step 3: Select **Email Setup**.

Step 4: Add one or more email addresses to the **Email addresses** text box. (figure 10.1)

Step 5: Click the **Save** button.

We cover adding that access right in *FrontDoor: The Manual*. We cover approving messages in section 18.3 on page 173.

10.1.2 Other Outputs

In addition to the Display Engine, Carousel can display messages on a public web site. To enable this feature for this zone, click on the **Enabled** checkbox. From this screen you also have the ability to disable the public output of any RSS bulletins for any specific zone.

To see the URL for this zone, go to the main menu and click **Extras**. You'll see the address for the current zone at the bottom of the list.

Pro/Enterprise Editions: Carousel Pro and Enterprise are also able to display messages on a screensaver client, which can be downloaded from the **Extras** menu.

10.2 Lists

The **Lists** tab includes lists of fonts, transitions and excluded words that you don't want your RSS reader display.

The first two are lists with checkboxes next to them. Simply uncheck the fonts or transitions that you do not want available for this zone.

For RSS words, type all of the words that you want the RSS reader to filter when it filters items. Any item with that word will not be displayed.

You may consider some words objectionable and others embarrassing and therefore not appropriate. For example, you do not want your audience learning that Ford just came out with an awesome new car if your system is installed in a Chevrolet dealership.

10.3 Display Engine

The items within this tab relate to adjusting the Display Engine's behavior.

10.3.1 Bulletin Pacing

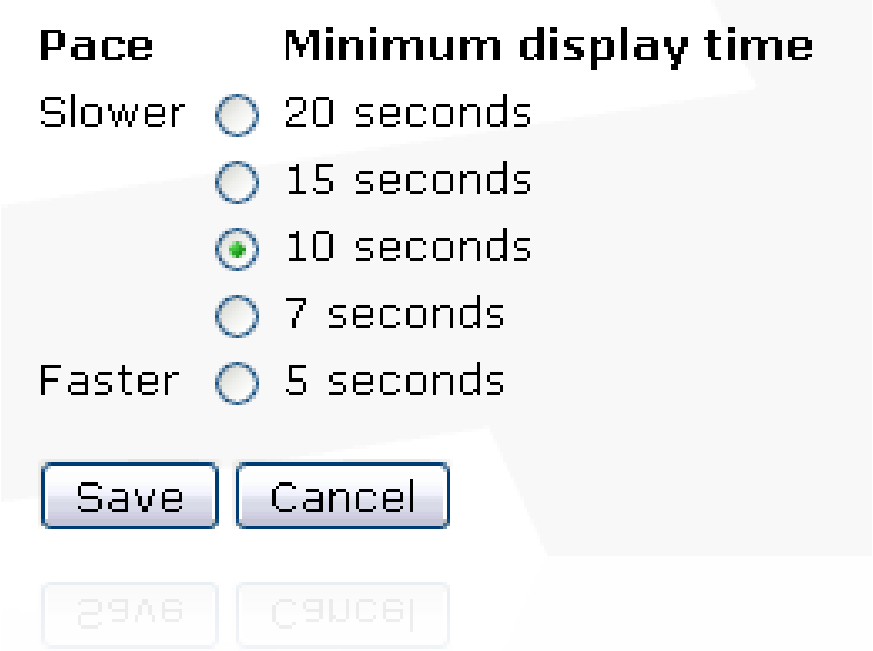
Carousel will automatically count the number of words on a page and hold the bulletin for an appropriate length of time. You can also set the minimum number of seconds a bulletin will hold on the screen.

10.3.2 Default Transition

Carousel will use an effect to transition from one bulletin to the next. If you would like to pick a specific transition, choose it from the **Default Transition** pop-down list. The "`Random`" choice results in a random transition being displayed.

When a several bulletins use the same background, as often is the case with schedules, and zones dedicated to an RSS feed, it's best to pick a wipe or a fade transition to make it appear as though the text is changing while the background is static.

FIGURE 10.2: Bulletin Pacing Form



10.3.3 Bumper Graphic

FIGURE 10.3: The Bumper Graphic Form

The bumper graphic is a graphic that appears once a loop. It is a welcome message that lets people know who the zone belongs to; usually a logo. Think of it like a *station identification* on television or radio.

By default, this feature is turned on. You can turn it off by clicking the **Show bumper page** checkbox.

To have the bulletin appear for the minimum amount of time, a setting we adjusted in section 10.3.1 on the preceding page, set it to **Automatic timing**. Otherwise, **Manual timing, show for...** will allow you to enter a specific amount of time.

To change the display engine graphic[1], click the **Upload** button at the bottom of the form. You will be asked to upload a picture file. Make sure it is either a JPEG or PNG file and it is always best to match the zone's aspect ratio and resolution.

When you are done adjusting these settings, click the **Save** button.

[1] Especially if your system has the default Tightrope *Scary Eye*.

11 The Configuration Menu: The Missing Pieces

We have yet to cover every nook and cranny in Carousel's **Configuration** menu, most of which was covered in chapter 7 on page 59, here are the rest of the pieces.

To start, navigate to the main menu and click the **Configure** button on the far right, located in the status bar.

11.1 Synchronizing Zones

Imagine that you have multiple players displaying content in close proximity to one another, such as in a triptych[1] display. For effect you would like to build each channel with one large zone and synchronize each display so that every message is the same across all three monitors.

This effect is accomplished by setting the zone's configuration form, located within the **Zones** area. This feature will hold each zone's bulletins until they are all ready to advance. Additionally, Carousel will hold each zone on the last message of its cycle until all of the zones cycles have completed.

Example: If there are 30 bulletins in two zones and 31 in another and they are all synchronized together, Carousel will hold the first two zones on the last page of their cycle while the third zone shows its extra message. That way, when the zones loop back to the beginning, they will all be showing their first slide in the sequence.

In order for this feature to work, the zones must be on separate channels. That is, you cannot have two zones on the same channel that transition at the same time. Sorry about that! It's just how Carousel was made. :)

Select your zone, then click the **Show Zone Synchronization Settings** link. This will display the form shown in figure 11.1.

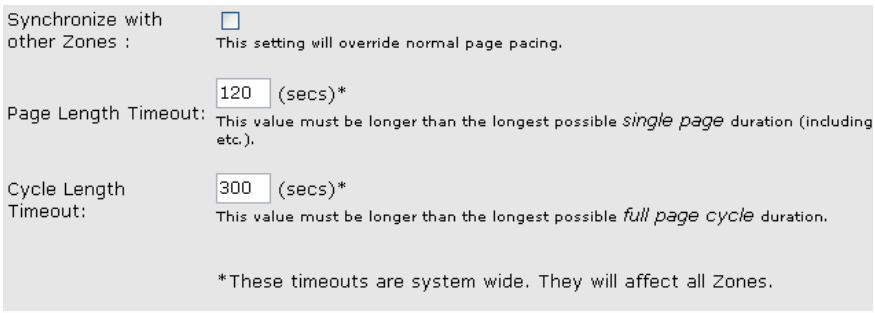

Synchronize with other Zones :
This setting will override normal page pacing.
Page Length Timeout:
120
(secs)*
This value must be longer than the longest possible single page duration (including etc.).
Cycle Length Timeout:
300
(secs)*
This value must be longer than the longest possible full page cycle duration.
*These timeouts are system wide. They will affect all Zones.

FIGURE 11.1: The Zone Synchronization Menu

[1] Art consisting of a painting or carving (especially an altarpiece) on three panels (usually hinged together). In this case, three LCD panels with graphics are considered art.

The first checkbox, **Synchronize with other zones**. This enables the feature and Carousel will wait for all other zones that also have this feature enabled before it will advance slides.

The **Bulletin length timeout** field sets the maximum duration for a single slide. If a slide goes past this length, Carousel will automatically advance all of the zones.

The **Cycle length timeout** field is the amount of time that should pass before Carousel gives up on a zone's cycle. That is, if all of the pages take longer than the value in this field to display, Carousel will reset all of the zones back to the beginning.

The *Page* and *Cycle* values work to eliminate possible problems related to misbehaving slides in a presentation. It stops the zones from being permanently locked up on a particular slide.

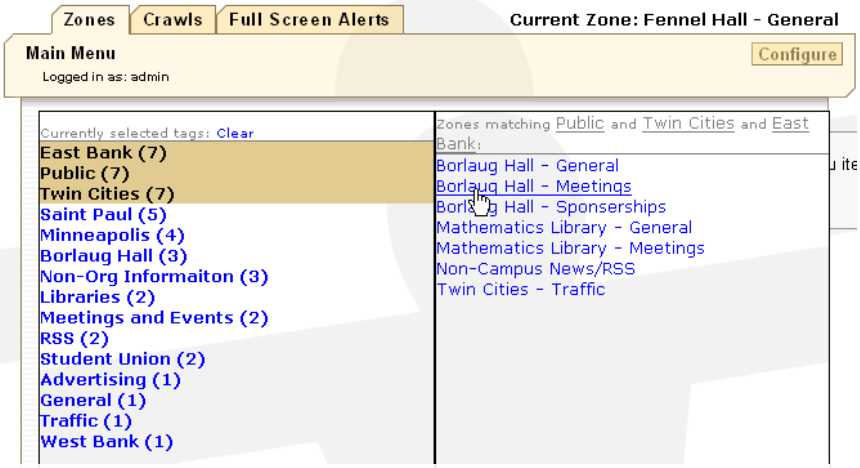
Carousel can only support one of these configurations per system. That is, you cannot have one set of four zones that are synchronized together and another set of three synchronized independently.

11.2 System Configuration Menu

First, let's navigate to the **Configuration: System** menu. This will be the home for this section. In here we will configure some of Carousel's more esoteric settings.

11.2.1 Zone Selection Style

FIGURE 11.2: The zone picker.



The instructions for the single field in this form are pretty clear. If your system has more than the number of zones in the **Switch to Zone** field, you'll see the zone picker appear. If not, the standard pop-down list of zones appears.

11.2.2 Administrator Email Setup

In section 10.1.1 on page 91 you can define who is emailed when a bulletin is waiting for approval on a specific zone. This is handy if you have multiple administrators,

each in charge of specific sets of zones. If you're the only one approving bulletins for a multi-zone system, however, it can be a pain to enter your email address on each an every zone.

This area of the system setup allows you to enter a set of email address that are notified anytime a bulletin is waiting for approval *on any zone in the system*.

11.2.3 Zone Tags

Tagging zones is extremely important in large systems where you want to be able to easily select a zone by filtering out ones that do not meet a certain criteria. They are also handy when you want to copy a bulletin to many zones of a specific type or you want to give a user access to a set of zones and you don't want to list them individually.

They are unimportant for smaller systems.

Zone Tag Name
Advertising
Tagged Zones: Borlaug Hall - Sponserships, Mariucci Arena - Sponsership
Athletics
Tagged Zones: Mariucci Arena - Entryways, Mariucci Arena - Ice Time, Mariucci Arena -

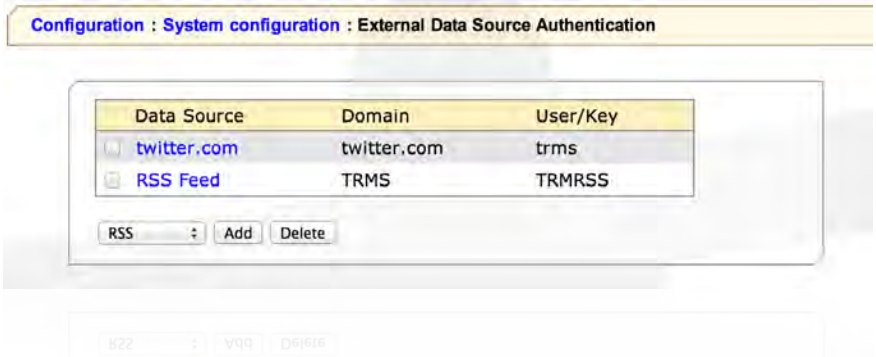
We covered how and why to tag zones in section 2.5.2 on page 26. To add a zone here, click the **add** button. To delete one, click the **delete** button after selecting the tag's checkbox.

If a zone tag has zones that use it, you will see them listed beneath the tag's name.

11.2.4 External Data Source Authentication

This menu is where you manage authentication for external data sources, such as Twitter, Facebook, and domain-wide RSS feeds.

FIGURE 11.3: The external data source authentication menu



To add a new data source, select the type of data source you'll be connecting to from the drop-down box and click **add**. The next steps depend on which data source you've chosen.

RSS : Enter a name for the RSS Feed, along with a domain, username, and password. Click "`Save`" when done. Credentials entered here will always be the default for new RSS bulletins, unless they are set otherwise in an individual bulletin.

Twitter : Follow the link provided to complete authentication with an existing Twitter account.

Facebook : Follow the link provided to complete authentication with an existing Facebook account. Facebook authentication does expire, so this authentication will need to be updated roughly once a month.

11.2.5 Proxy Configuration

This Carousel server (both the Web UI and Carousel Service) needs to access the internet to download content for certain dynamic bulletins, such as weather bulletins (which access http://api.wxbug.net/webservice-v1.asmx), Facebook bulletins (which access https://www.facebook.com/ and https://carousel-facebook-proxy.herokuapp.com/index.html), Twitter bulletins (which access https://api.twitter.com/), web pictures, web snapshots and RSS bulletins. Additionally, players may need a proxy to download their media from the Carousel server over HTTP. (Interactive bulletins will always use the Internet Explorer proxy settings for the user the player software is running under.)

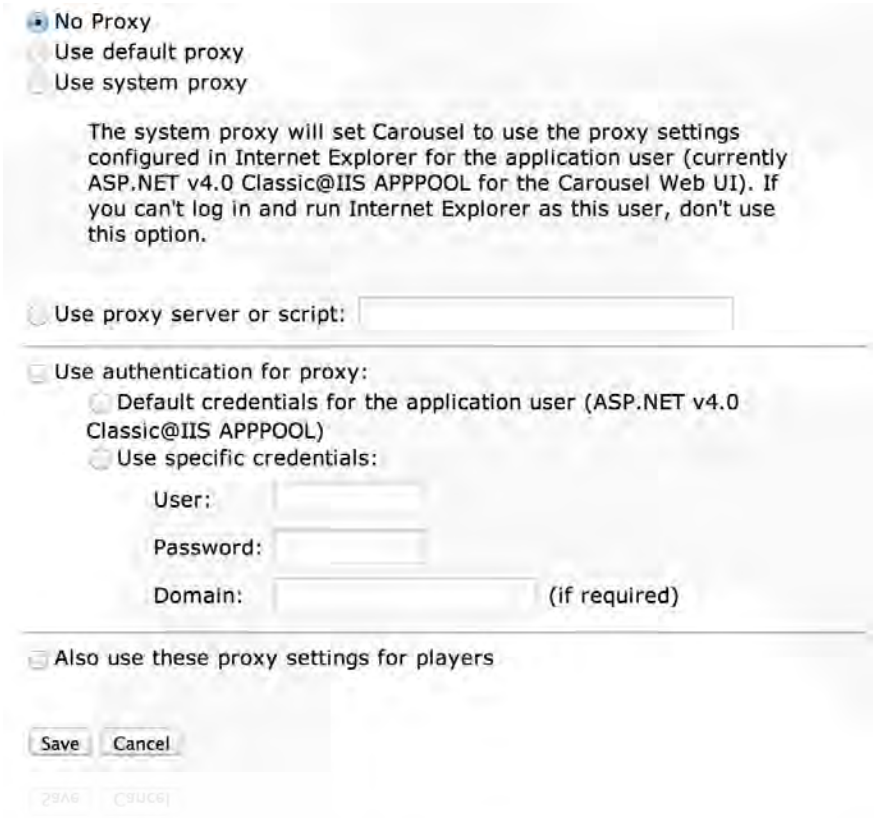

No Proxy
Use default proxy
Use system proxy
The system proxy will set Carousel to use the proxy settings configured in Internet Explorer for the application user (currently ASP.NET v4.0 Classic@IIS APPPOOL for the Carousel Web UI). If you can't log in and run Internet Explorer as this user, don't use this option.
Use proxy server or script:
Use authentication for proxy:
Default credentials for the application user (ASP.NET v4.0 Classic@IIS APPPOOL)
Use specific credentials:
User:
Password:
Domain:
(if required)
Also use these proxy settings for players
Save
Cancel

FIGURE 11.4: The proxy configuration menu

Some sites require the server and, possibly, players to use a proxy to access the internet. This menu is where you tell Carousel about the specifics of your site's proxy, if one is needed to access the internet.

It is a good idea to discuss these settings with your IT staff to make sure you get the right options configured or maybe they can configure the firewall to have exceptions for the necessary sites so the server has direct access.

11.2.6 System Information

The system information form provides a wealth of interesting information, including the amount of disk space consumed by all of the media in your system. It also displays version information for all software, memory usage and processes currently running on the machine. It is extremely helpful information when troubleshooting your system.

12 Users and Carousel

You do not need to create and configure user accounts within Carousel to begin using it, as the built-in administrator account can serve that purpose. User accounts are something that you should concern yourself with if you will want additional contributors to the system—not everyone should have full access to every part of Carousel.

We cover creating user accounts, adjusting permissions and roles within *FrontDoor: The Manual*. We're just going to cover some topics that relate to Carousel within this chapter.

12.1 Permissions

The built-in administrator account, *admin*, always has full access to every part of the Carousel system. Other accounts may be created with any level of access that is needed. Additionally, an account can have varied roles for different zones within Carousel.

Example: A person can have the ability to create a message on a general bulletin zone without having it approved by anyone. At the same time, and because of a different role applied to a second zone, they may also have their messages held for approval when sent to a zone that appears on all of the displays throughout the organization.

These roles are assigned to users and applied to either zones or *zone tags*. When a role is applied to a zone tag, the user is given a specific level of access to any zone which shares that tag. If you have a tag called *'Public Spaces'* and you add a Carousel player that has a new zone with that tag, then the user would be automatically given the assigned permission to that zone, if they had a role applied to the *'Public Spaces'* zone tag.

12.2 Multiple People, Same Account

It is common to have people share the same account, especially within a department. When this happens, it is not possible to decern the exact person that made the message.

In environments with a lot of turn over, assigning a single password to a group of people is a convenient way grant access. When someone leaves, or every 6 months or so, you can change the password on that account, leaving the new group of people access with little fuss.

When two people share the same account, they may both log in at the same time without issues. Carousel is able to separate each login's session without confusion.

12.3 Users and Carousel Solo

Carousel Solo systems have one administrator account and one user account. You can change the permission levels for the user account in the *FrontDoor User Manager*, but you cannot add additional users.

Remember, multiple people can log in at the same time using the same account. You just will not know which person made which message.

12.4 Setting Up The Approver

When you think about users, you may want to allow some of them to make bulletins, but hold them for approval before they appear. We cover setting this permission in *FrontDoor: The Manual*.

Carousel has a feature that sends an email whenever bulletins that must be approved are created. To tell Carousel the email addresses that should receive those emails, follow the steps in section 10.1.1 on page 91.

III. Making Bulletins

"Good communication is as stimulating as black coffee, and just as hard to sleep after."

—Anne Morrow Lindbergh, Gift From The Sea

13 Making Bulletins

→ section 2.4.5 on page 24, *Bulletins*

There are several ways to make bulletins in Carousel. You can upload pre-made bulletins and videos, create them from external data, or even upload Microsoft PowerPoint presentations.

By far, the most common way to create a bulletin in Carousel is to create one through a template. Templates are a bulletin starting point with a background and areas for a combination of text, pictures, rectangles and video.

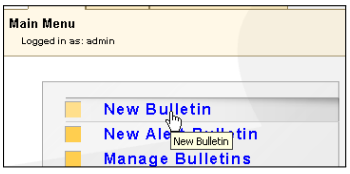
The template editor is covered section 19.7 on page 186. If you have previously installed the default template package (section 9.2 on page 90), or someone has made some templates for you, you can proceed with this chapter. If not, you'll want to learn how to make your own templates first, so that you have something to work with.

In this chapter, we focus on making a bulletin from a template. However, apart from selecting and using the template, the process for creating a bulletin is nearly identical, no matter what type you are making. Therefore, we reference this chapter heavily when making other types of bulletins.

13.1 Selecting a Template

The first order of business is to select the zone from which you would like to create a bulletin. Do that by selecting one of the main tabs at the top and, for now, avoiding any crawl zones[1].

Not only will choosing a zone determine where the message will appear, it also changes the templates and media that you will be able to use, as these are specific to zones.



From the desired zone tab select **New Bulletin** from the **Main Menu**. Provided that the **Standard** tab is selected, a list of templates will appear (figure 13.1 on the next page).

Choose a template based on the type of message that you intend to write. Templates, generally, are designed with a purpose and include a graphic layout designed to assist in creating a specific message, such as an important date or the lunch menu. Templates can also be used as a starting point. You can change the background, picture elements and text blocks, remaking the template into whatever you want.

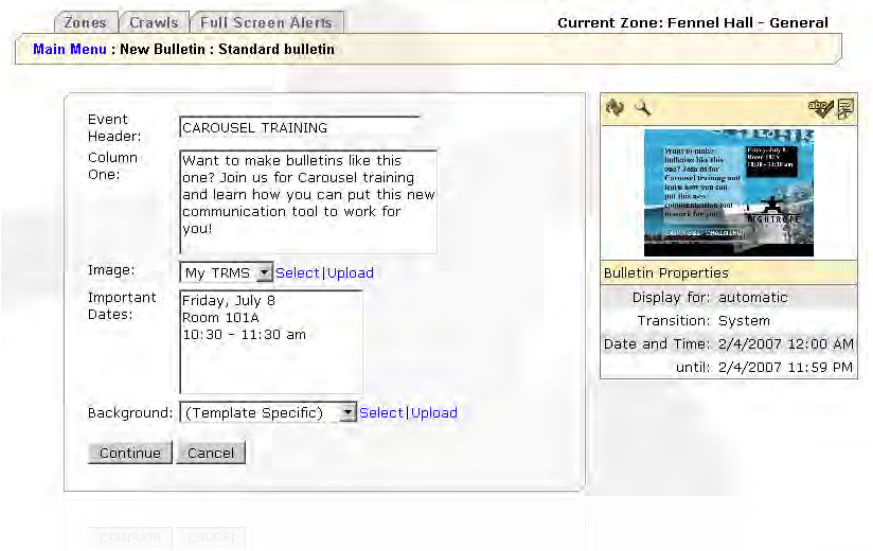
In figure figure 13.1, we chose *Column and Image with Title* from the default set of templates.

[1] The second tab over, if you forgot what you read in chapter 2 on page 19.

FIGURE 13.1: Picking a Template

13.2 Editing and Creating Bulletins

FIGURE 13.2: The Edit Bulletins Form



The next screen to appear is the bulletin editing form. It includes all of the elements that are a part of the chosen template. In figure 13.2 we can see a good example of what to expect with a template.

First, notice that on the left is a form with text and pop-down fields that define the message. On the right is a preview and properties section. Looking carefully at the preview picture, you can see that the fields on the right are represented in the preview, although the text is a bit small.

To create your message, fill out the form on the left. You will notice that the pop-down lists correspond to either a video or a picture, depending on the field. You can make a new selection by using the pop-down selector or by clicking the **select** button, which brings up Carousel's media picker. We covered the media picker in depth in section 6.6 on page 56.

If you're putting text in a multi-line text box, you can resize the box by clicking on the little icon in the lower right corner ( ) and dragging it.

Notice the preview palette on the right hand side, illustrated in figure 13.5. The

biggest feature of this palette is the preview of your message. As you are editing your bulletin, you can update this thumbnail representation by clicking the **Update Preview** icon just above the preview.

If you would like a closer look at your bulletin, click the **Full Screen Preview** icon to open a larger view.

13.2.1 Adding Style using HTML Tags

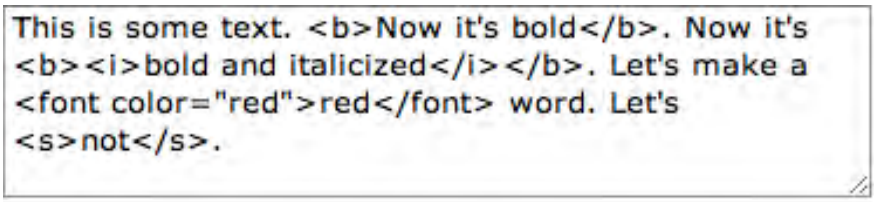


FIGURE 13.3: Adding HTML tags to some bulletin text

Some tags are supported in Carousel's bulletin text boxes:

** :** Bold text.
** :** Italicized text.
<u></u> : Underlined text.
<s></s> : Strike out text.
** :** Change the color of a font.

An example of this in action is shown in figure 13.3, which made the bulletin in figure 13.4.

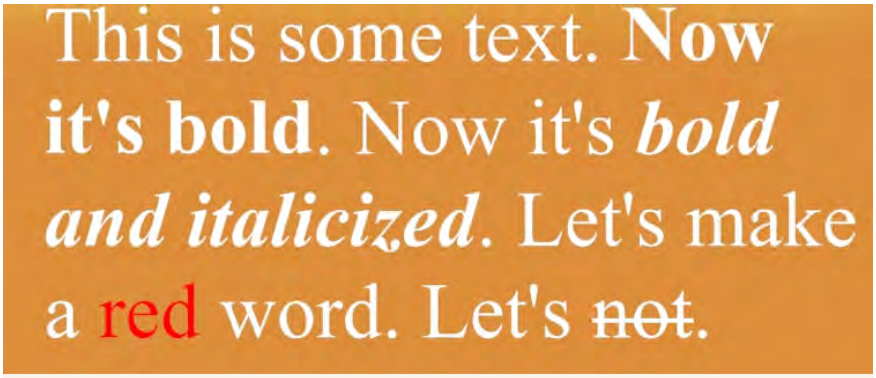


FIGURE 13.4: Example of HTML tags in action

If you mess up by not closing out a tag () or use a tag that is not supported, none of the text in that block will be shown.

13.2.2 Checking your spelling

In case you might have made an unintentional spelling error, you can check it by clicking the **Spell Check** icon .

13.2.3 Editing the Template of the Bulletin

To edit the template for this bulletin and *this bulletin only*, click the **Edit Template** icon . When editing the template from a message, you are only modifying that

template for *this bulletin*. If you need to permanently modify the template, then edit it from the **Media** menu before you make the bulletin.

FIGURE 13.5: The Quick Edit Palette

Quick edit makes quick changes to bulletins.

By default, the area below the preview is taken up by a listing of some of the general properties for this bulletin. If you click on an element within the preview, such as a picture or a block of text, a limited set of tools to edit the layout or attributes of the selected element will appear. For example, you can change the font color, size and position of a text box by clicking on it in the preview. The Quick Edit palette, shown in figure 13.5, provides these tools.

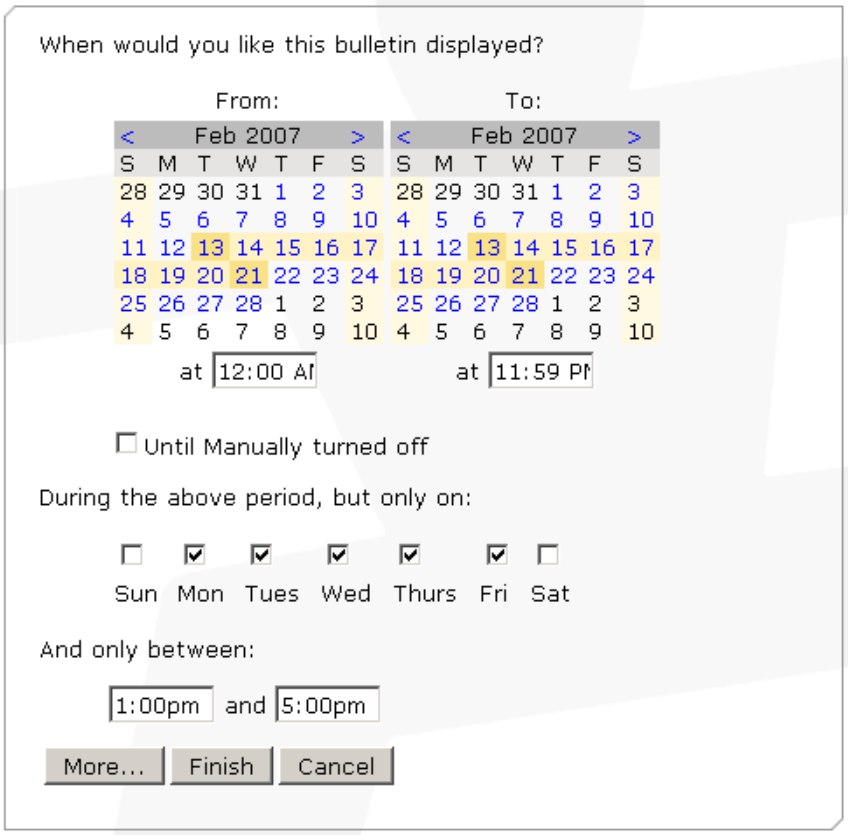
You can limit a user's ability to edit bulletins in two ways. You can stop them from being able to add or edit templates and you can stop them from using the Quick Edit tools. This is important if you are trying to control the look of your communications, otherwise known as *your brand*.

When you are finished, click the **Continue** button.

13.3 Scheduling a Bulletin

Every bulletin in Carousel can be scheduled using the form illustrated in figure 13.6. Simply click the start day (on the *from* calendar) and then choose the end day (from the *to* calendar). If you need to specify the exact time of day that these bulletins will appear/dissappear, you can enter that into the fields labeled **at** directly below the calendars.

FIGURE 13.6: Scheduling Bulletins


When would you like this bulletin displayed?
From:
To:
< Feb 2007 >
S M T W T F S
28 29 30 31 1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 1 2 3
4 5 6 7 8 9 10
at 12:00 AM
at 11:59 PM
Until Manually turned off
During the above period, but only on:
Sun Mon Tues Wed Thurs Fri Sat
And only between:
1:00pm and 5:00pm
More... Finish Cancel

If you want a bulletin to be on "forever", then click the **Until Manually turned off** checkbox. This will result in Carousel ignoring your calendar input.

> Remember, unless you are scheduling an *alert* bulletin, the schedule does not mean that your bulletin will appear at exactly the start time and date period that you have activated. It merely means that this bulletin is *active* during this time. If you have 30 bulletins in your active bulletins list, and this is an active bulletin, then it is simply number 31.

With or without the **Until Manually turned off** checkbox, you can still choose to filter active times by periods of the day and/or days of the week. Simply uncheck the days of the week that you do not want your bulletin to be active. To filter times of the day, pick the span of time that you want the bulletin active for in the fields below the **And only between** label.

At this point, you can click the **Finish** button to complete your bulletin. Clicking

the **More...** button allows us to add more bulletins in a group, edit some of the advance properties or play with the frequency of display within Carousel's bulletin loop. For most bulletins, the default settings are appropriate. If you are following along in this chapter, you will click the **More...** button.

13.4 Bulletin Properties

If you want to edit some of the details of a bulletin (figure 13.7 on the next page), you can do so in the **Bulletin Properties Form**, which you can access by clicking the **More...** button on the **Bulletin Schedule** form.

13.4.1 Bulletin Dwell Time, aka Timing

At the top, Carousel asks us **For how long would you like to display this bulletin?**. The default, **Let the system decide**, instructs Carousel to hold the bulletin for an amount of time determined by the value set in section 10.3.1 on page 92.[2]. Switch the radio button to the second option to override this setting.

13.4.2 Tracking Bulletin Impressions

If you would like to keep track of how many times this bulletin has been displayed (across your entire Carousel digital signange network), be sure to enable the "`Track impression count`" checkbox. With this setting enabled, the Carousel Display Engines will contact the server each time they display this bulletin, and a counter will be incremented. A simple calculation based on the number of impressions and the dwell time (specified in section 13.4.1) will also be made to give you a reasonable estimate on the total amount of on-screen time.

To view the statistics for a bulletin, navigate to the active bulletins list (see chapter 18) for the zone the bulletin is scheduled on. Bulletins that have impression tracking enabled will have an extra attribute which reports the total number of impressions plus the approximate on-screen time, as seen in figure 13.8 on page 110.[3]

13.4.3 Bulletin Transitions

Carousel will use the zone's default transition unless you change it under the **How would you like to transition into this bulletin?** label. A helpful preview adorns the right side of this pop-down list.

13.4.4 Sound File

Below the transition list, you can choose a sound file for this bulletin. If the right file is not yet loaded, click the **upload** button.

If you specify a sound file and you have background audio playing on Carousel, the system will automatically fade the background audio while your bulletin's audio plays. If Carousel is playing the background audio, as opposed to passing an external audio source through, it will even pause the audio while your bulletin's clip plays.

[2] Carousel will slightly adjust this value based on the number of words on a page. If a video clip is present, then the time will be the length of the clip.

[3] For more information about bulletin impression tracking, see http://blog.trms.com/john/2008/03/carousel-52-bul.html.

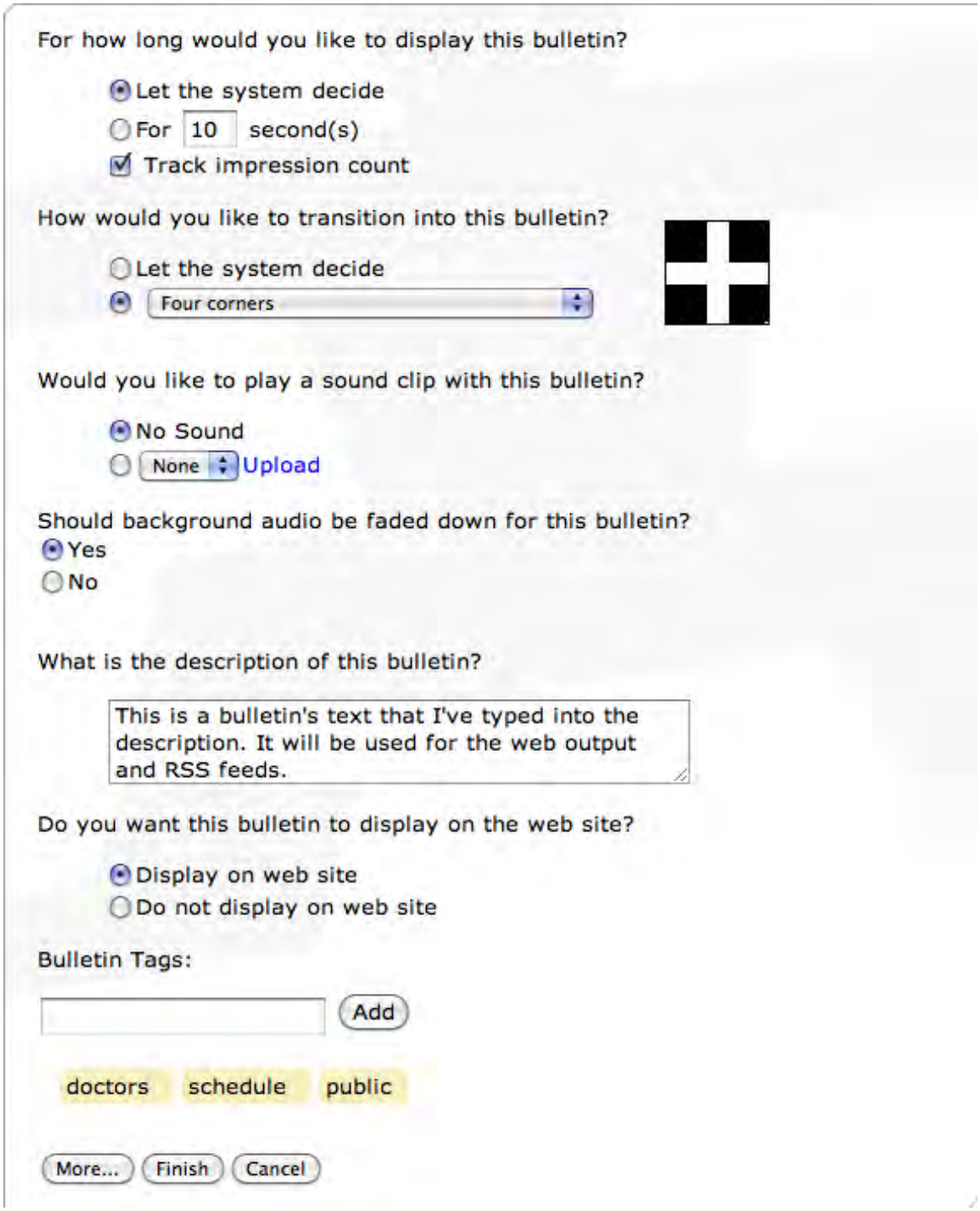

For how long would you like to display this bulletin?
Let the system decide
For 10 second(s)
Track impression count
How would you like to transition into this bulletin?
Let the system decide
Four corners
Would you like to play a sound clip with this bulletin?
No Sound
None
Upload
Should background audio be faded down for this bulletin?
Yes
No
What is the description of this bulletin?
This is a bulletin's text that I've typed into the description. It will be used for the web output and RSS feeds.
Do you want this bulletin to display on the web site?
Display on web site
Do not display on web site
Bulletin Tags:
Add
doctors
schedule
public
More...
Finish
Cancel

FIGURE 13.7: The Bulletin Properties Form

FIGURE 13.8: Viewing Bulletin Impression statistics

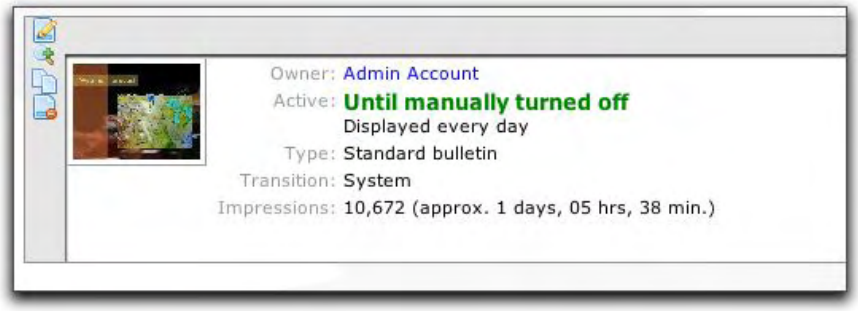

Owner: Admin Account
Active: Until manually turned off
Displayed every day
Type: Standard bulletin
Transition: System
Impressions: 10,672 (approx. 1 days, 05 hrs, 38 min.)

FIGURE 13.9: Choosing a sound

13.4.5 Bulletin Description

Next, Carousel asks **What is the description of this bulletin?** This description is used within the web interface to label the bulletin and, more importantly, to describe the bulletin in RSS feeds and HTML output. It defaults to all of the text fields, in order, separated by semicolons.

If you do change the description and you are using Carousel's RSS output, covered in section 20.2 on page 206, then you'll want to make the description more verbose and appropriate for readers that will not see the graphic image. Both the RSS and HTML output provide the image, but not all readers will bother to load it.

To exempt this bulletin from being displayed on any alternate output, such as HTML or RSS, choose the **Do not display on web site** option.

If you are finished, click the **Finish** button. If not, click **More...**

13.4.6 Bulletin Tags

You can filter bulletins by tags, covered in section 18.1.2 on page 169, *Filtering By Tags*, and use tags with Carousel's RDA feature, which is covered in chapter 21 on page 209, *Remote Data Adaptor*.

To add a tag to the bulletins, just type the tag into the **Bulletin Tags** field. Click the **Add** button when you're done. To add multiple tags at once, separate them by commas. (figure 13.11 on the facing page)

Example: "`this, adds, four, tags`"

As you type a tag that is already in use, you'll see Carousel helpfully display the existing tag, as we show in figure 13.10 on the next page. Just arrow down to the desired tag to use it.

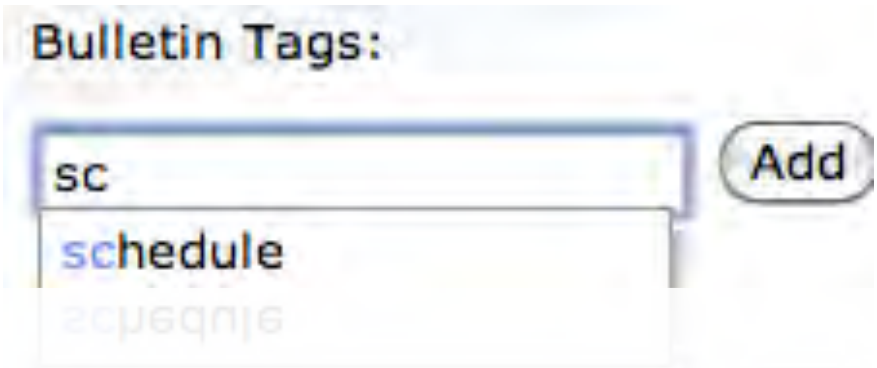


FIGURE 13.10: Existing tags will appear as you type

This feature helps eliminate duplicate tags that happen from misspelling and the use of plurals. Use this feature to guard against these problems and your tags will be much cleaner.

To delete a tag, hover over the doomed tag and click, as we show in figure 13.12. You'll see a minus appear as you hover over the tag to indicated that clicking will delete it.

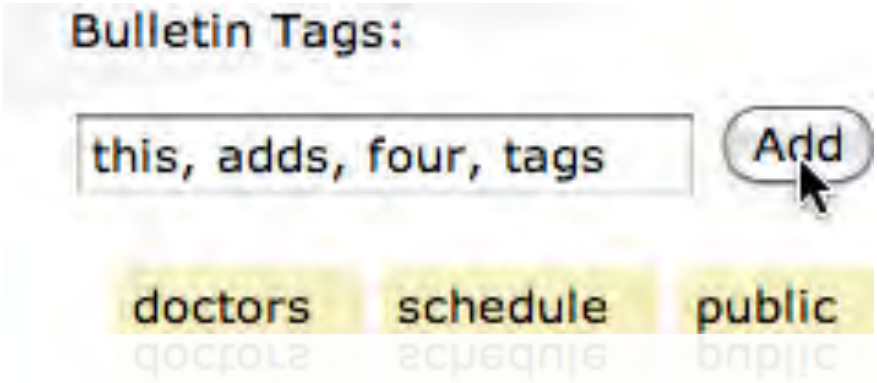


FIGURE 13.11: Adding four bulletin tags at once

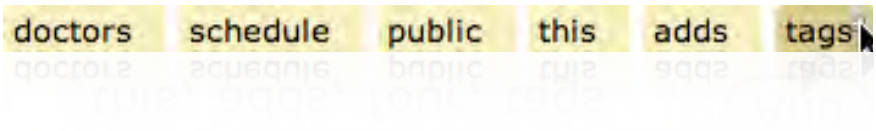


FIGURE 13.12: Deleteing a bulletin tag

13.5 Adding a Bulletin to a Group

You can add another bulletin to the one you just created. This creates another bulletin using the *same template* as the one you just created. There is no practical limit to the number of bulletins that you can add by clicking the **Yes** button, illustrated in figure 13.13.

If you want to group bulletins that use different templates, you can create them separately and group them together in the list that is home to your bulletin (Active Bulletins, Active Repeating…). We cover this in section 18.1.3 on page 170.

You can set a unique schedule and edit the properties for this bulletin, separate from any previous.

When you are finished adding bulletins to your group, click the **No** button.

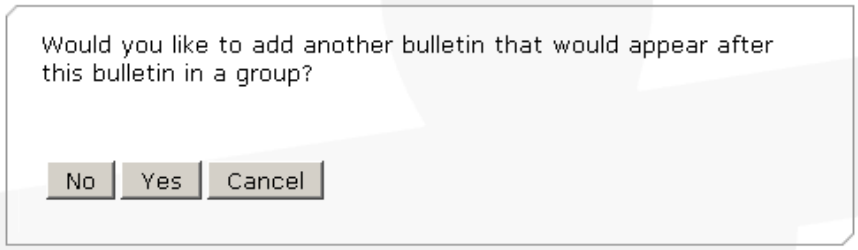
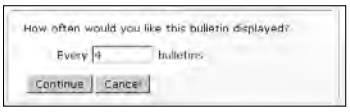


FIGURE 13.13: Adding Another Bulletin

13.6 Setting the Bulletin Type: Active or Repeating



Standard bulletins show once a loop. To repeat them more often, choose the second option, **Active Repeating Bulletin**. After clicking **Continue**, you will be asked to enter the frequency of the bulletin.

Active repeating bulletins will interrupt grouped bulletins.

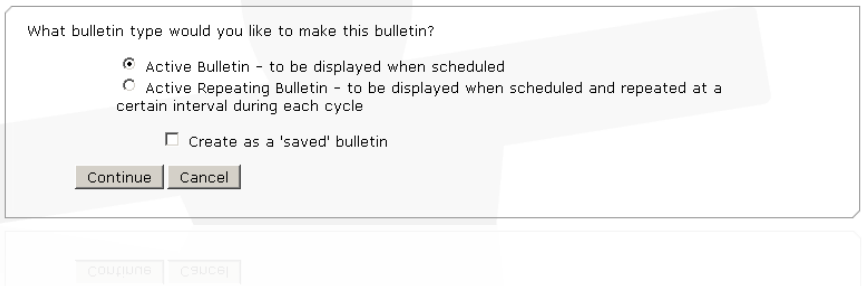

What bulletin type would you like to make this bulletin?
Active Bulletin - to be displayed when scheduled
Active Repeating Bulletin - to be displayed when scheduled and repeated at a certain interval during each cycle
Create as a 'saved' bulletin
Continue
Cancel

FIGURE 13.14: Selecting the bulletin type.

To create this bulletin as a *saved* bulletin, click the **Create as a 'saved' bulletin** checkbox. Regardless of the schedule, this bulletin will not be activated. This is handy when you have not finished with the content of the bulletin and need to revisit it.

When finished, click **Continue**.

13.7 Duplicating a Bulletin on Multiple Zones

This section highlights an extremely powerful feature of Carousel, which is the ability to send bulletins to multiple zones.

Figures 13.15 and 13.16 show the two styles of zone selection that are possible within Carousel. The *zone list* is used when a smaller number (usually less than 15 or so) of zones are available to choose from. When more are present, Carousel automatically switches to the *Zone Selector* in figure 13.16 on page 114. Since the zone list is straightforward, we will focus on the *Zone Selector*.

13.7.1 Selecting Zones with the Zone Selector

The *Zone Selector* features a list of available zone tags[4] on the left. As you select tags from the left, zones are filtered out on the right. To clear the selection, click the **Clear** link above the tag list.

[4] . . . explained in section 2.5.2 on page 26 and established in section 7.2 on page 59. . .

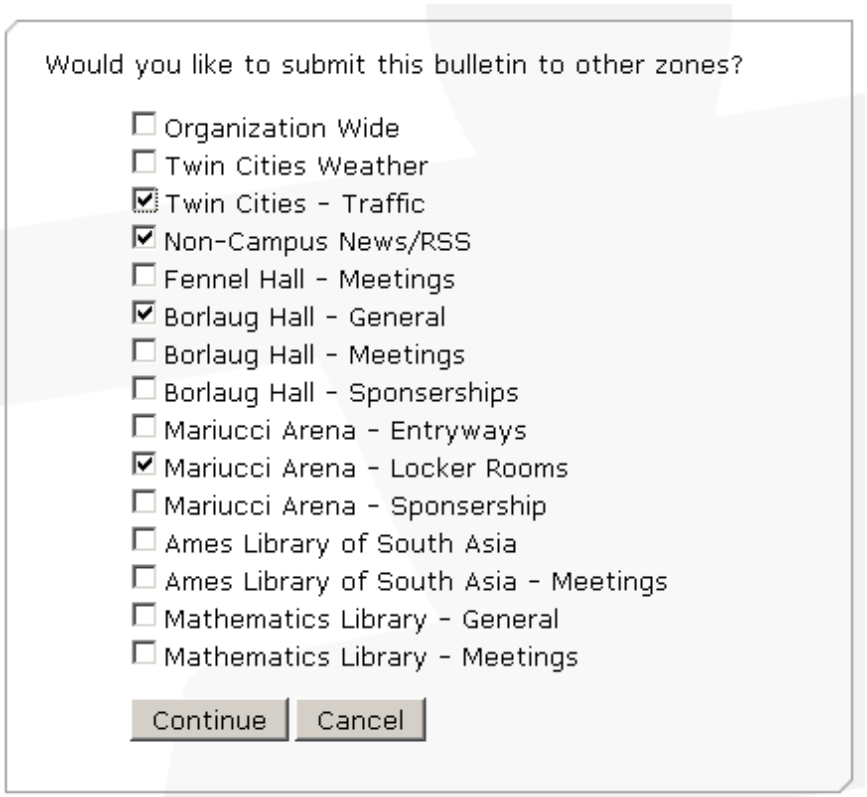

Would you like to submit this bulletin to other zones?
Organization Wide
Twin Cities Weather
Twin Cities - Traffic
Non-Campus News/RSS
Fennel Hall - Meetings
Borlaug Hall - General
Borlaug Hall - Meetings
Borlaug Hall - Sponserships
Mariucci Arena - Entryways
Mariucci Arena - Locker Rooms
Mariucci Arena - Sponsership
Ames Library of South Asia
Ames Library of South Asia - Meetings
Mathematics Library - General
Mathematics Library - Meetings
Continue
Cancel

FIGURE 13.15: Sending bulletins to multiple zones using the zone list.

When you get the selection you are looking for, you can select individual zones by selecting their checkbox, or you can select all of the zones selected by your filter by clicking the **Select All** arrow above the **Zones Matching** list.

As you select zones from the list on the right, you will notice them being added to the list labeled **Currently Selected Zones**. You remove individual zones from this list by clicking their checkbox, or you can clear them all by clicking the **Clear** link.

Notice that the zone you are currently on is automatically selected and cannot be deselected. If for some reason you wanted to create a bulletin from a zone and copy it to others without displaying it on the zone you created it from, you could just delete it from your zone and the bulletin would remain on the others.

Click **Continue** when you are finished.

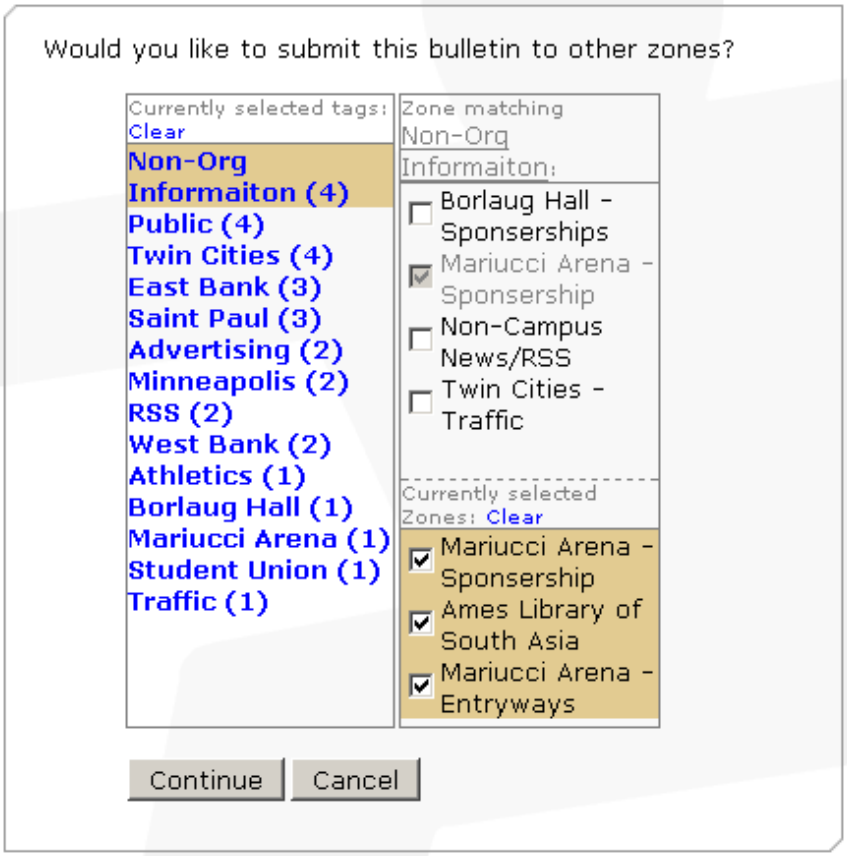


FIGURE 13.16: Sending bulletins to multiple zones using the zone picker.

13.8 Confirmation

When you are finished, Carousel gives you a quick summary of your accomplishments. Click **Ok** to create your bulletin.

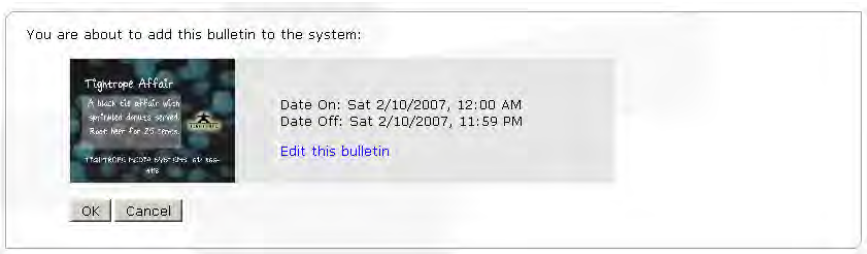

You are about to add this bulletin to the system:
Tightrope Affair
Date On: Sat 2/10/2007, 12:00 AM
Date Off: Sat 2/10/2007, 11:59 PM
Edit this bulletin
OK
Cancel

FIGURE 13.17: Bulletin Confirmation

14 Making Crawls

Carousel's approach to crawls is different than previous versions where the Crawl was associated with the channel. In Carousel, a crawl zone is just like a bulletin zone in that one can be placed on any combination of channels. We cover this in section 2.4.8 on page 25.

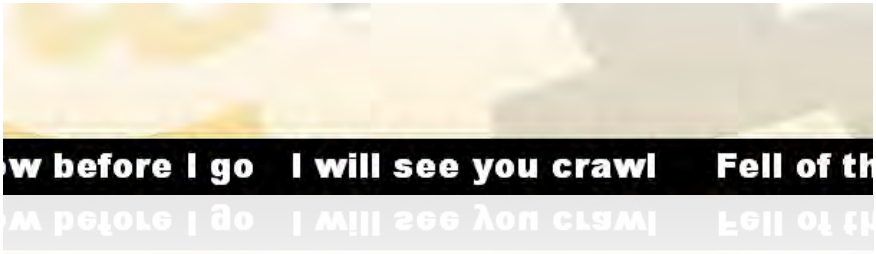


FIGURE 14.1: Example Crawl (Free 'kudos' if you name the band that wrote these lyrics.)

Making a crawl in Carousel is just like making a standard bulletin, but with fewer choices. Whereas a standard bulletin can be made from a template, a crawl is just text that is placed in a line that *'crawls'* across the bottom or top of the screen (figure 14.1). The attributes that determine the speed and look of the crawl is established in the **Configuration: Channel Configuration: Editing *Channel Name* : Crawl Settings** menu, which we covered in section 7.3.3 on page 65.

14.1 Multiple Crawls at the Same Time

If you schedule two crawls to appear at the same time on the same zone, Carousel will append the text of the two bulletins, separating them with a dash (—). You can change the order in which they appear by re-ordering them in the active bulletins list, which we talk about in section 18.1.4 on page 170.

14.2 Choosing a Crawl Zone

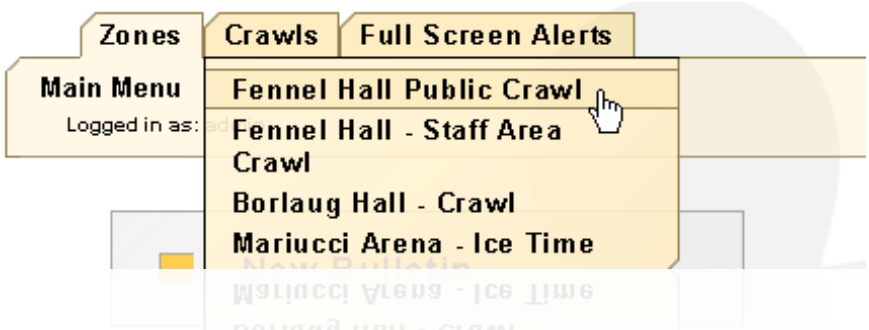


FIGURE 14.2: Choosing a Crawl Zone

The first step is to choose the crawl zone you would like to use, keeping in mind that this is how you determine *where* the crawl will be seen. You pick the zone from the second tab at the top of the menu, shown in figure 14.2. If you have only one crawl zone, the second tab will show the zone's name instead of the word *Crawls*.

14.3 Creating a Crawl

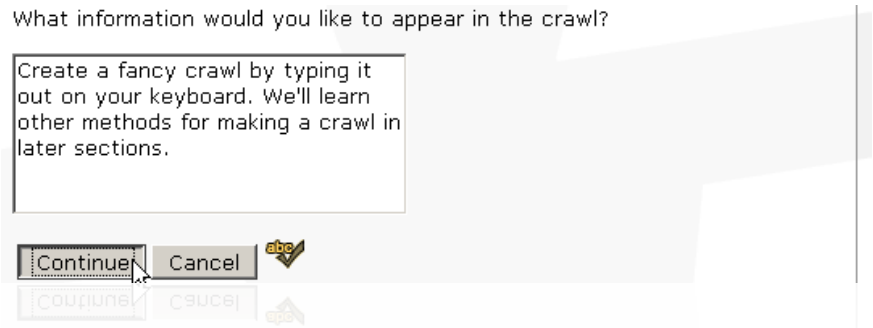

What information would you like to appear in the crawl?
Create a fancy crawl by typing it out on your keyboard. We'll learn other methods for making a crawl in later sections.
Continue
Cancel

FIGURE 14.3: Making a Crawl Bulletin

First, click **New Bulletin** from the main menu and select **Create a Crawl**, the first menu option.

The form, shown in figure 14.3 will appear. Type your message in the text area and check your spelling with the **Spell Check** icon. When finished, click the **Continue** button.

14.4 Scheduling and Properties

Scheduling a crawl is just like scheduling a regular bulletin, an activity we learned in section 13.3 on page 107. In fact, the rest of the properties for creating a crawl are the same as for a regular bulletin, with some exceptions:

- The following items from the **Bulletin Properties** form have no effect:
  - Bulletin timing
  - Bulletin Transitions
  - There can be no sounds
- You cannot create a group of crawls.
- You cannot create an active repeating or alert crawl.

Once you are finished, you will see the confirmation screen. You can always go back and re-edit your bulletin by clicking on the **Edit this bulletin** link.

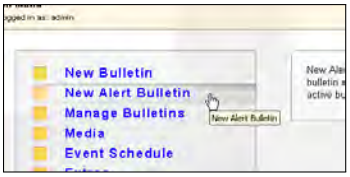
15 Alert and Full Alert Bulletins

Alert bulletins remove the currently playing bulletins until they expire. You can have any number of Alert bulletins active at any time. We discussed how they are used in section 2.4.6 on page 24 and section 2.4.7.

Full Screen alert bulletins are just like alert bulletins, except that they are created on a special zone. When they are active, any channel that uses them will remove all of the normal zones from the display, showing only the full screen alert until all of its pages are expired. Channels can subscribe to any number of full screen alert zones. Priority is given to the highest zone in the channel's subscribed zones, so the highest priority full screen alert zone for that channel will override any other zone's bulletins.

That way you can use full screen alert zones to announce important things that are not emergencies, but also have a full screen alert zone that overrides these special bulletins, as well as any other bulletins in your channel's layout.

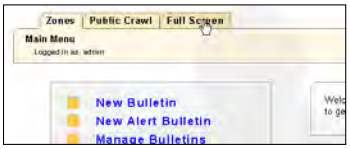
15.1 Zone Based Alerts



Any bulletin zone may have an alert bulletin created by clicking on **New Alert Bulletin** from the main menu. From there, creating the page is exactly the same process as a standard bulletin, a topic covered in chapter 13 on page 103.

When an alert page is active, no other bulletin from that zone will be displayed until *all* of the alert bulletins have expired.

15.2 Full Screen Alerts



Thethird tab from the top will show either the name of the full screen alert zone on your system, or **Full Screen Alerts**, if you have more than one of these zones.

Once you select a full screen alert zone, the system will switch to that zone and you may create and manage the zone like any other. The one exception is that you may only create an alert bulletin from this zone, by activating a bulletin from this zone removes all other bulletins from the channels that use it.

Remember, full screen alert zones appear on one or more channels. A channel can have any number of these zones.

16 Uploading Bulletins

In chapter 13 on page 103 we covered the process of creating a bulletin in Carousel by using a template. In this chapter, we cover uploading pre-made bulletins. There are five options for accomplishing this task, all in the **New Bulletin** menu under the **Uploaded** tab.

Picture : Use this to upload a bulletin that was created in a program outside of Carousel, such as Adobe Photoshop. See section 16.1.

Flash : You can upload Adobe Flash animations directly into Carousel. See section 16.2 on page 121.

Video : Carousel can play back Apple QuickTime, Windows Media, and MPEG-1,2, and 4 files. When uploaded here, they take up the entire zone. See section 16.1.

PowerPoint : Carousel can play Microsoft PowerPoint presentations as individual slides or as an entire presentation. See section 16.3 on page 124.

Bulletin Package : You can import bulletins from a previous version of Carousel or from another system. See section 16.4 on page 124.

16.1 Uploading Video and Pictures

Uploading a picture or a video as a bulletin in Carousel is simply a matter of finding it on your hard drive and clicking the **Upload** button.

It is important to consider the size of the video or picture, in order to achieve the maximum quality that is possible. Carousel will automatically shrink, expand or stretch your content, but if you can create it at the same dimensions as your zone, Carousel will have less processing to do on the image.

16.1.1 Picture Formats

For pictures, Carousel supports JPG, BMP, and PNG files.

For the purposes of uploaded bulletins, Carousel will ignore any alpha channel settings in these pictures.

16.1.2 Video Formats

For video, all Carousel editions support MPEG-1, 2, and 4. If you have a Solo 210, 300R, or Carousel Server, then, in addition to all three types of MPEG, Carousel also supports QuickTime, Windows Media, and AVI files. This includes DV, AVI, and QuickTime DV files, although you must set the QuickTime file to play back in high quality mode in order for it to play back correctly. See QuickTime documentation for details.

Start and end videos with black.

For best effect, all videos should fade up and fade down to black, as Carousel will cut to black before showing and before leaving the video bulletin. Starting and ending with black hides this limitation.

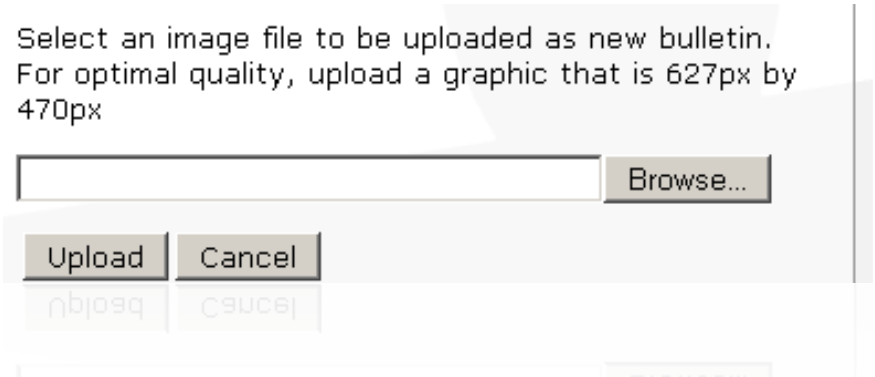

Select an image file to be uploaded as new bulletin.
For optimal quality, upload a graphic that is 627px by 470px
Browse...
Upload
Cancel

FIGURE 16.1: Uploading a picture or video

The maximum allowed file size for an uploaded video is 1 gigabyte.

Carousel works very hard to play video without glitches or stutters. However, it does not use dedicated video hardware to decode video streams. It is best to experiment with different codecs and bit rates, especially if your Carousel players were not purchased from Tightrope. Typically, MPEG-4 at 2-3 megabits plays very well, as does MPEG-2 at 4-6 megabits. Very high bitrate WMV or QuickTime files will tend to stutter, although we have tested high definition WMV files with great success. Because the players are processing other aspects of bulletin management and probably displaying other zones at the same time, your video performance milage will vary.

16.1.3 Notes on Uploaded Pictures and Video

After you have uploaded your video or picture file, Carousel's message creation process becomes identical to that of creating a message from a template, with a few exceptions.

First, with an uploaded picture, the **Description** field, covered in section 13.4 on page 108, *Bulletin Properties*, will be set to the picture's name. You will want to change this if you are using the RSS or HTML output of Carousel.

Second, when uploading videos, the length settings have no effect, as Carousel will play each video from start to end.

Also, remember that Carousel will start the bulletin in black and end it in black, so any transition that you choose will be from black to and from the video.

An audio file cannot be attached to an uploaded video bulletin.

Finally, Carousel does not show video on the screensaver output. It shows that there is a video on the HTML and RSS output, but it does not provide a link to or show the video in any way.

Carousel automatically fades down any background audio during the playback of video clips.

16.2 Uploading Flash

The ability to play flash animations is a powerful feature of Carousel. With it, you can incorporate all of the power of Adobe Flash, including existing material that you may already be using on your web site.

16.2.1 The Flash Properties Form

Uploading Flash is as simple as browsing to the SWF file on your computer and clicking the **Upload** button.

Once the Flash animation is uploaded, Carousel asks a number of questions of you, in order to optimize playback.

The first field allows you to name the animation. It defaults to the file name.

16.2.2 Flash Animation Timing

The second option controls how Carousel treats the length of the animation. If your animation is controlling the playback length through Flash's Action Script, Carousel will not be able to decipher the end of the animation. In that case, chose the **Play for...** option and enter the number of seconds that the Flash animation should play.

If the animation's main timeline has a real length and ends after a number of frames, then Carousel can accurately detect the end of the animation and you can pick the first timing option, which is to base it off the time line and is much more accurate.

16.2.3 Audio and Flash

If the animation has audio that you would like to include in Carousel's output, select **Yes** in answer to the audio question on the bottom of the form. Carousel will then fade the background audio and include the animation's.

16.2.4 Notes on Flash in Carousel

The Carousel Solo 100 has very limited processing power. It includes Flash playback support, but keep the animations very simple if you expect great performance.

It is best fade the animation up from and down to black because this will hide the fact that Carousel will show black in the beginning or end of Flash animations.

When building Flash for Carousel, it is best to place a background layer that covers the entire canvas and spans the duration of your video. This will eliminate any unintended see-through problems with your zone.

Carousel will resize and stretch your animation to fill the entire zone. With Flash, it is critical that you build the animation to the exact size of the zone, as dynamically resizing the animation will always result in a pixel or two of overlap.

Carousel will provide playback for HTML output, but will not show Flash content on any screensaver client or in an RSS feed.

! → Interactivity within will cause issues with Flash playback. In short, you want to

FIGURE 16.2: Flash Bulletin Properties

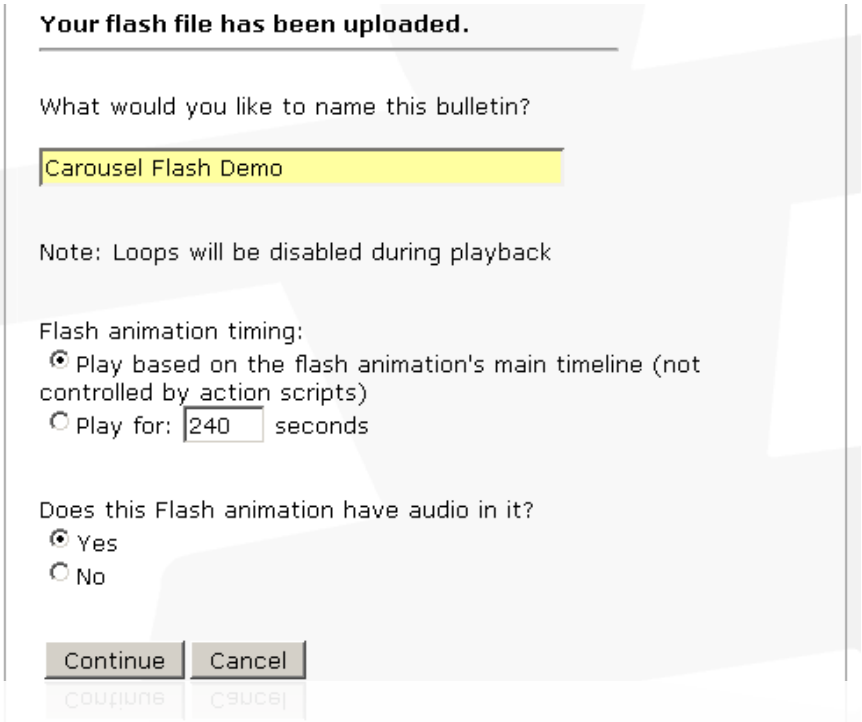
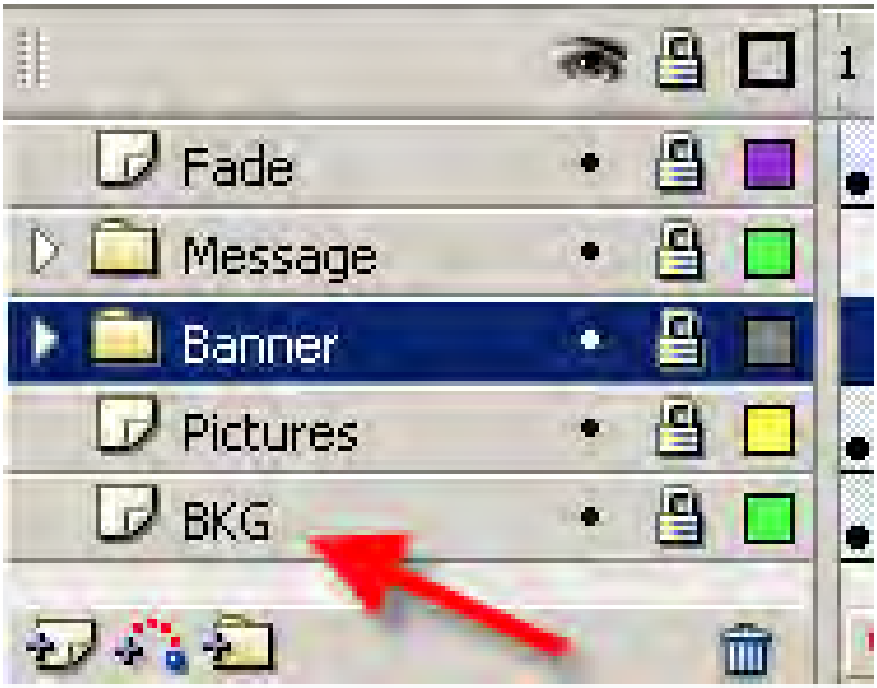

Your flash file has been uploaded.
What would you like to name this bulletin?
Carousel Flash Demo
Note: Loops will be disabled during playback
Flash animation timing:
Play based on the flash animation's main timeline (not controlled by action scripts)
Play for: 240 seconds
Does this Flash animation have audio in it?
Yes
No
Continue
Cancel

FIGURE 16.3: Insert a background in Flash to avoid a black background.



build or modify your flash animation for unattended playback and you want to avoid Action Script commands that will affect timing.

16.3 Uploading PowerPoint

As of Carousel Version 6, importing PowerPoint presentations is no longer supported. You can, however, export PowerPoint slides as JPEG or PNG files and import them into Carousel. We walk through this process in appendix G on page 263, *PowerPoint: How To Import Slides*.

16.4 Uploading Bulletin Packages

A bulletin package is a *zip* file that includes all of the information that Carousel needs to play the bulletin or bulletins. These packages are handy when you are importing a series of pictures into Carousel (such as from PowerPoint) or transferring bulletins from an older system.

16.4.1 Anatomy of a Bulletin Package File

If you're importing a bulletin package, which we show how to create in section 18.1.5 on page 172, *Creating a Bulletin Package*, Carousel will insert all manner of cryptic files which are not necessary to understand.

You can make a bulletin package by putting a bunch of JPEG or PNG files into a zip file. Carousel will import them, *in alphabetical order*, except that Carousel automatically interprets numbers correctly…

Example: "`...08, 09, 10, 11`" is the same as "`8, 9, 10, 11`" and either one would show in the expected order.

16.4.2 Uploading a Bulletin Package File

Once you locate the zip file and upload it to Carousel, it confirms the upload with the number of slides that it found, as you can see in figure 16.4.

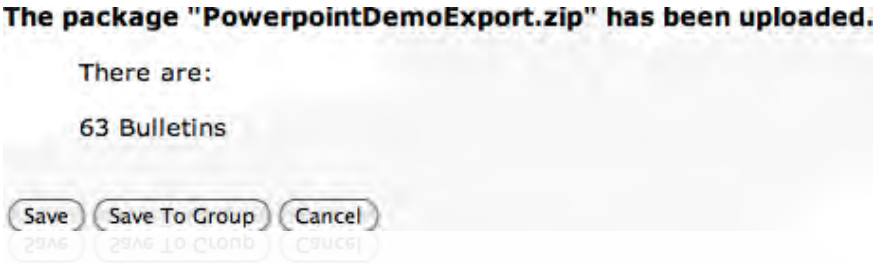


FIGURE 16.4: Bulletin Upload Confirmation

If you click **Save**, the bulletins will be added to your active pages list, one after another. If you click **Save To Group**, all of the bulletins will be added as a single group, which can be deleted and managed en masse.

You can then re-edit and reschedule them as needed. If the bulletins were scheduled in the past, be sure you go to the stale pages list and re-activate your pages.

17 Dynamic Bulletins

Carousel features special types of bulletins called *Dynamic*. In short, these are bulletins that are driven by data and require special forms in order to be created.

If the current zone is a crawl zone, then you will see the choices for dynamic bulletins limited to those that use the crawl and listed below the **Create a Crawl** menu item.

Here is a brief description of each type:

Clock Bulletin : Display the current time in a variety of formats, including analog, digital, and a countdown timer. See section 17.1.

Cable Display Bulletin : This option appears if you have Cablecast active on your system. It renders bulletins before and after shows, displays the schedule and holds a static slide during programming. See section 17.4 on page 134.

Weather Bulletin : This will retrieve and display weather data based on your zip code. See section 17.2 on page 129.

Weather Crawl : This bulletin is the same as the Weather Bulletin, except in crawl form. You will see this option when a crawl zone is active. See section 17.3 on page 133.

RSS Bulletin : RSS bulletins display items that are published by RSS feeds. See section 17.5 on page 140 for how to make them and a definition of RSS.

RSS Crawl : This is the crawl version of RSS Bulletins, seen when a crawl zone is active. See section 17.6 on page 146.

Twitter Bulletin : This bulletin will show information from a public Twitter search, or from a specific Twitter account with the correct authorization.

Facebook Bulletin : This will pull information from either a public Facebook page, or a private Facebook page with the correct authorization.

Event Schedule Bulletin : These bulletins are a part of the *Event Display System* (EDS). This plug-in is great at reading event information and displaying it in intelligent ways. See section 17.9 on page 150 for information on creating EDS bulletins. See section 17.11 on page 158 to learn how to schedule events for use with EDS from within Carousel.

Live Video Feed : This bulletin opens a link to a Windows Media stream or will pull video from the optional TV Input card. See section 17.12 on page 159.

Interactive Bulletin : This bulletin lets you define or upload a web site that can be used for an interactive display[1]. See section 17.13 on page 161.

17.1 The Clock Bulletins

Carousel supports three ways of displaying time; Analog clocks, digital clocks, and a countdown timer. To pick between clock styles, select your preferred style in the **Style** dropdown menu.

[1] A touchscreen display device is required and is sold separately.

17.1.1 Analog Clock

Carousel's analog clock simulates a wall clock complete with hands for the hour, minute, and second. You can select a variety of "hand styles," and you can upload your own backgrounds for a variety of clock faces. The analog clock setup screen is shown in figure 17.1.

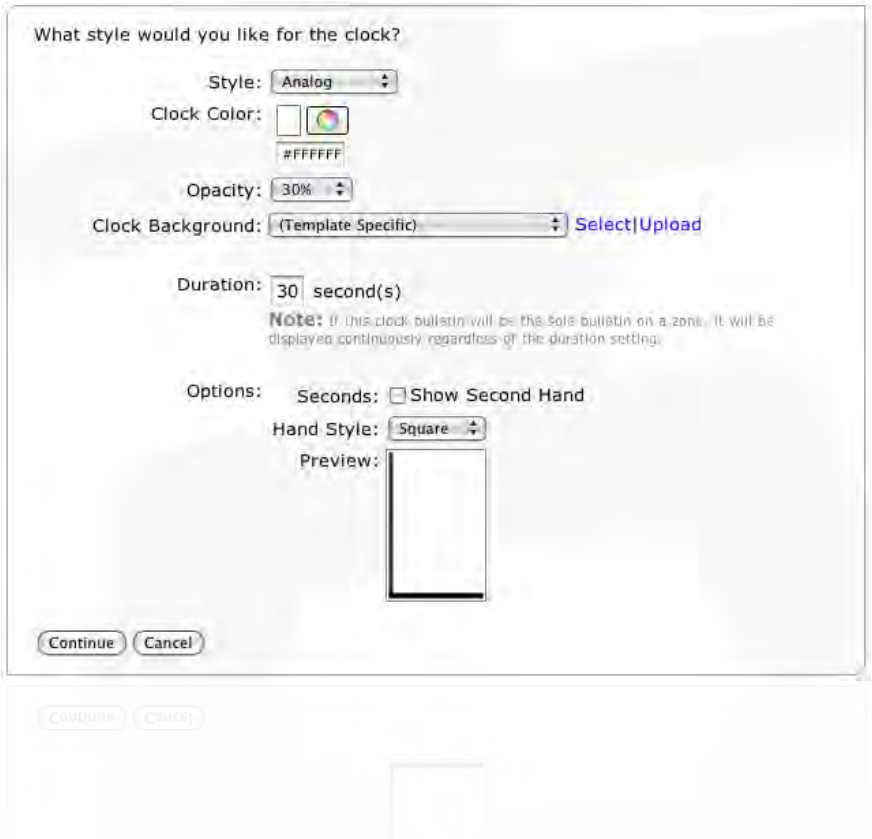


FIGURE 17.1: Analog Clock Properties

Analog Clock Options

Here are the options for the analog clock.

Clock Hand/Text Color : Sets the color for the clock's hands.

Opacity : Allows you to make the clock's hands semi-transparent.

Clock Background : Sets the background for the clock.

Duration : Determines how long this clock should be displayed on the zone before transitioning to the next bulletin in the cycle. If the clock is the only bulletin in the zone, it will be displayed continuously.

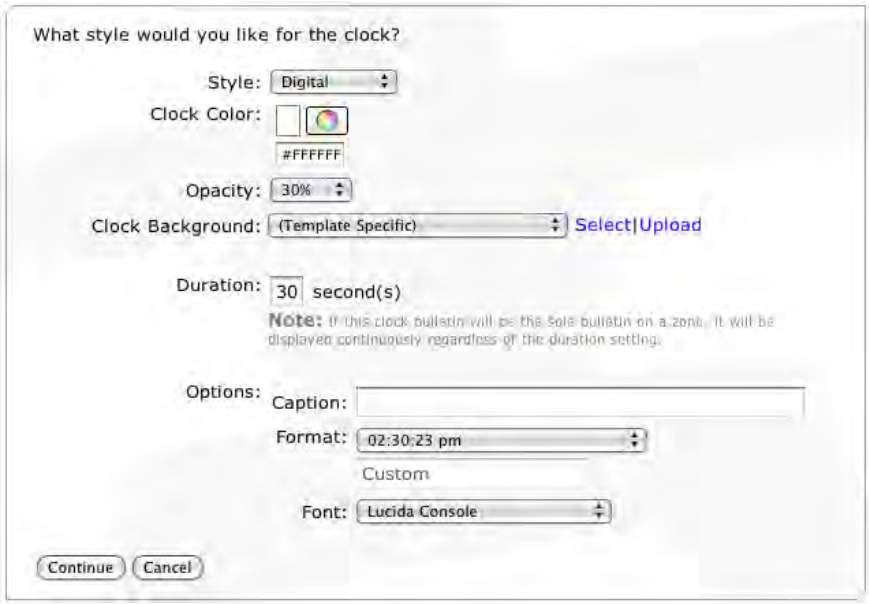
Show Second Hand : Allows you to turn the second hand on or off.

Hand Style : Sets how the clock's hands should be drawn. Select from "`Square`", "`Round`", or "`Pointed`". A small preview of the hands is shown.

17.1.2 Digital Clock

Carousel's digital clock displays the current time (and optionally date) within a zone. The digital clock setup screen is shown in figure 17.2 on the next page.

FIGURE 17.2: Analog Clock Properties



Digital Clock Options

Here are the options for the digital clock.

Clock Hand/Text Color : Sets the color for the clock text.

Opacity : Allows you to make the clock text semi-transparent.

Clock Background : Sets the background for the clock.

Duration : Determines how long this clock should be displayed on the zone before transitioning to the next bulletin in the cycle. If the clock is the only bulletin in the zone, it will be displayed continuously.

Caption : Allows you to pre-pend some text to the clock. (Example: "The time is now:")

Format : Lets you adjust exactly what is shown. A number of preset time formats are available in the drop-down menu. If you'd prefer to customize the display even further, you can select "`Custom`" from the dropdown list, and enter a custom format string into the "`Custom`" text box. For a list of formatting options, click the "`Show Legend`" link that appears when you have "`Custom`" selected. To create a line break, use the | (pipe) character.

Font : Allows you to select the font that the digital clock will use.

17.1.3 Countdown Timer

The countdown timer will display the time remaining (or since) a specific point in time. This is perhaps best described by example or two.

Example: Your office is throwing a party to celebrate a new product release scheduled for the first of next month. You can create a countdown timer to display the days/hours/minutes remaining until the official release. Now everyone will know exactly when they can pop the champagne.

Example: You're a principal at a high school that has 6 class periods every day. You can create and schedule six countdown timers that each count down to the start of a new period. Students won't have any excuse as to why they were late to class. You can even let the timer go negative, or, "into the red," so students know exactly how late they are.

The countdown timer setup screen is shown in figure 17.3.

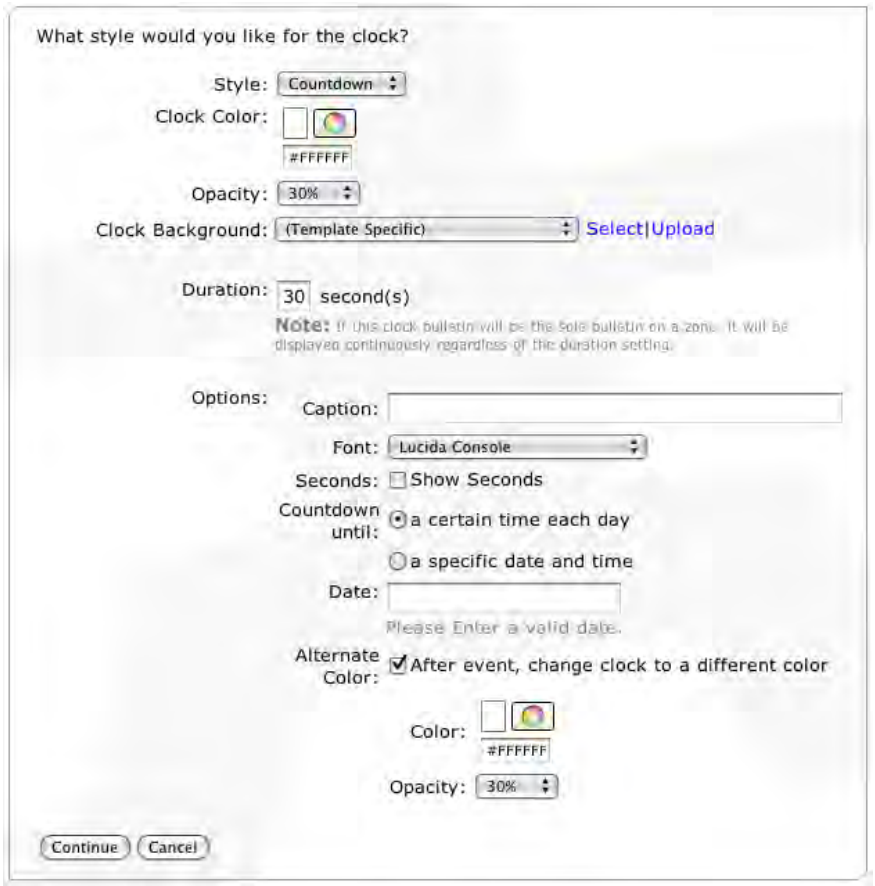

What style would you like for the clock?
Style: Countdown
Clock Color:
#FFFFFF
Opacity: 30%
Clock Background: (Template Specific) Select|Upload
Duration: 30 second(s)
Note: If this clock bulletin will be the sole bulletin on a zone, it will be displayed continuously regardless of the duration setting.
Options:
Caption:
Font: Lucida Console
Seconds: Show Seconds
Countdown until: a certain time each day
a specific date and time
Date:
Please Enter a valid date.
Alternate Color: After event, change clock to a different color
Color:
#FFFFFF
Opacity: 30%
Continue
Cancel

FIGURE 17.3: Analog Clock Properties

Countdown Options

Here are the options for the countdown timer.

Clock Color : Sets the color for the countdown text.

Opacity : Allows you to make the countdown text semi-transparent.

Clock Background : Sets the background for the countdown.

Duration : Determines how long this countdown should be displayed on the zone before transitioning to the next bulletin in the cycle. If the clock is the only bulletin in the zone, it will be displayed continuously.

Caption : Allows you to pre-pend some text to the countdown. (Example: "Time until class begins:")

Font : Allows you to select the font that the countdown will use.

Seconds : Lets you turn the seconds display on or off.

Countdown Until : You can either countdown to (and subsequently back up from) a specific date and time, or, you can count down to a certain time every day (resetting the countdown at midnight every day).

Date : This is the date and/or time that this timer will countdown to.

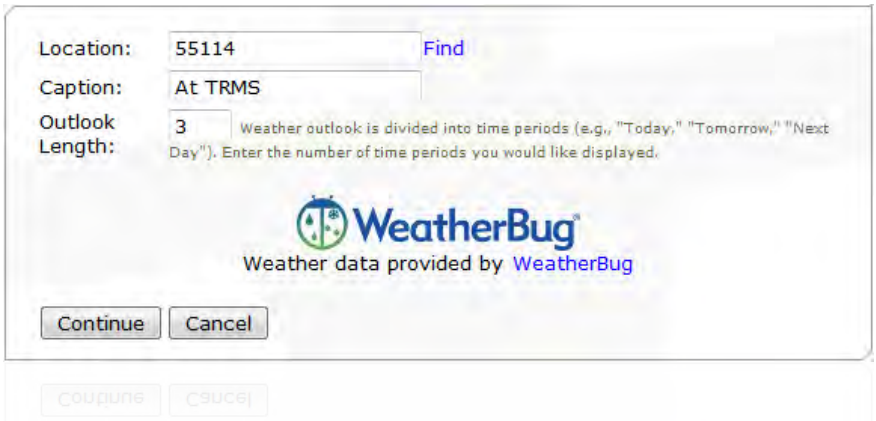
Alternate Color : This option lets you change the color of the timer text *after* the specified date/time has elapsed. (Example: Once class has started, you may want to turn the timer text red so students know they're late.)

17.2 The Weather Bulletins

The weather bulletin is a very popular feature. It uses WeatherBug[2] for forecast and current conditions based on your zip code.

17.2.1 Select Location and Caption

FIGURE 17.4: Choosing the location for weather information



The first order of business is to enter your desired location in the **Location** field. This can be either a Zip Code in the US or your latitude and longitude. The weather plugin will find the nearest WeatherBug station and use it to gather weather data.

If you're using a web browser that supports finding your location, a **Find** link will appear next to the **Location** field. Clicking this will allow your browser to determine your location for you.

The **Caption** field sets the words that precede the text of the bulletin. You will definitely want to change this from the defaults. For example, if you are creating a weather bulletin for a school, you might choose to set the caption as "`Conditions at Springfield Elementary`".

Finally, the **Outlook Length** field lets you set how much forecast data to display in your weather bulletin. Enter the number of days of forecast you'd like to see. For example, entering "`3`" will display the forecast for today, tomorrow, and the following day.

[2] Thanks to http://www.weatherbug.com for providing this data.

Click **Continue** when you are finished.

17.2.2 Changing the Backgrounds

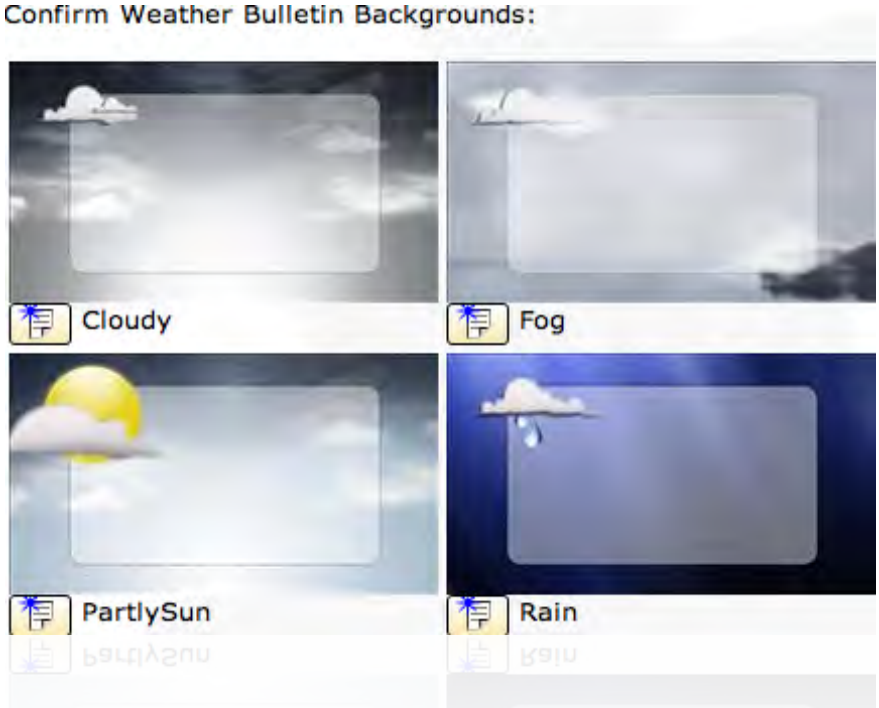


FIGURE 17.5: The Weather Templates

The next form, shown in figure 17.5, displays all of the different bulletins that might appear as a part of running this plug-in. You can see that all of them, except **Unknown**, relate to a possible condition that might happen. Carousel automatically adjusts the background to the current conditions. If it catches an unknown condition, it then uses the **Unknown** background.

If the default background is fine, then just click the **Continue** button at the bottom of the page. If not, click the **upload** link underneath the pictures and upload your new backgrounds.

17.2.3 Editing the Weather's Template

The next page will let you adjust the look of your weather bulletin slightly. Click on any text inside the bulletin to change some properties, such as text color, size, position, etc.

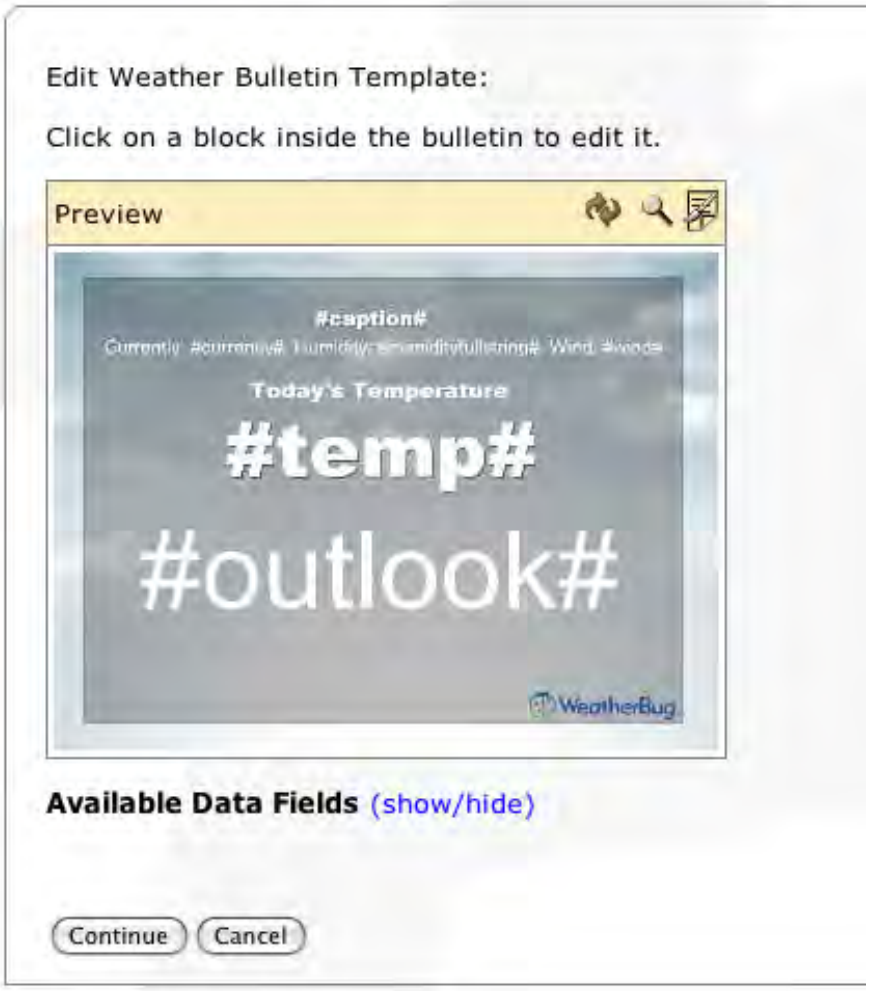
For more advanced control, you can edit the weather bulletin using the full-featured template editor. Just click on the **Edit Template** button above the preview.

Once you are in the template editor, whose operation we cover in section 19.7 on page 186, you can add or remove blocks, change the text, etc.

! → You will notice that some fields have the "#" symbol before and after a word. These strings are called *data fields*, and when Carousel comes across one of these, it will replace the field with the corresponding weather data.

To see a list of all the available data fields and their current values, click the **show/hide** link next to **Available Data Fields**. You will see options to display

FIGURE 17.6: The Default Weather Template



various temperature data in both Celsius and Fahrenheit along with numerous other options. You can use any of these data fields in your weather bulletin. For an example of some of the fields that are available, see figure 17.7 on the next page.

Make sure the "`outlook`" field has plenty of space because, unlike the other fields, there are typically multiple lines of text that fills this field. You can control the amount of data using the **Outlook Length** property described in section 17.2.1 on page 129.

You can split the *outlook* and *current conditions* into two slides by making two weather bulletins, one with the outlook and the other with everything else. For the outlook bulletin, make all of the backgrounds in section 17.2.2 on the preceding page the same because the current condition will determine what is used, which may look odd if there is a dramatic change in the weather.

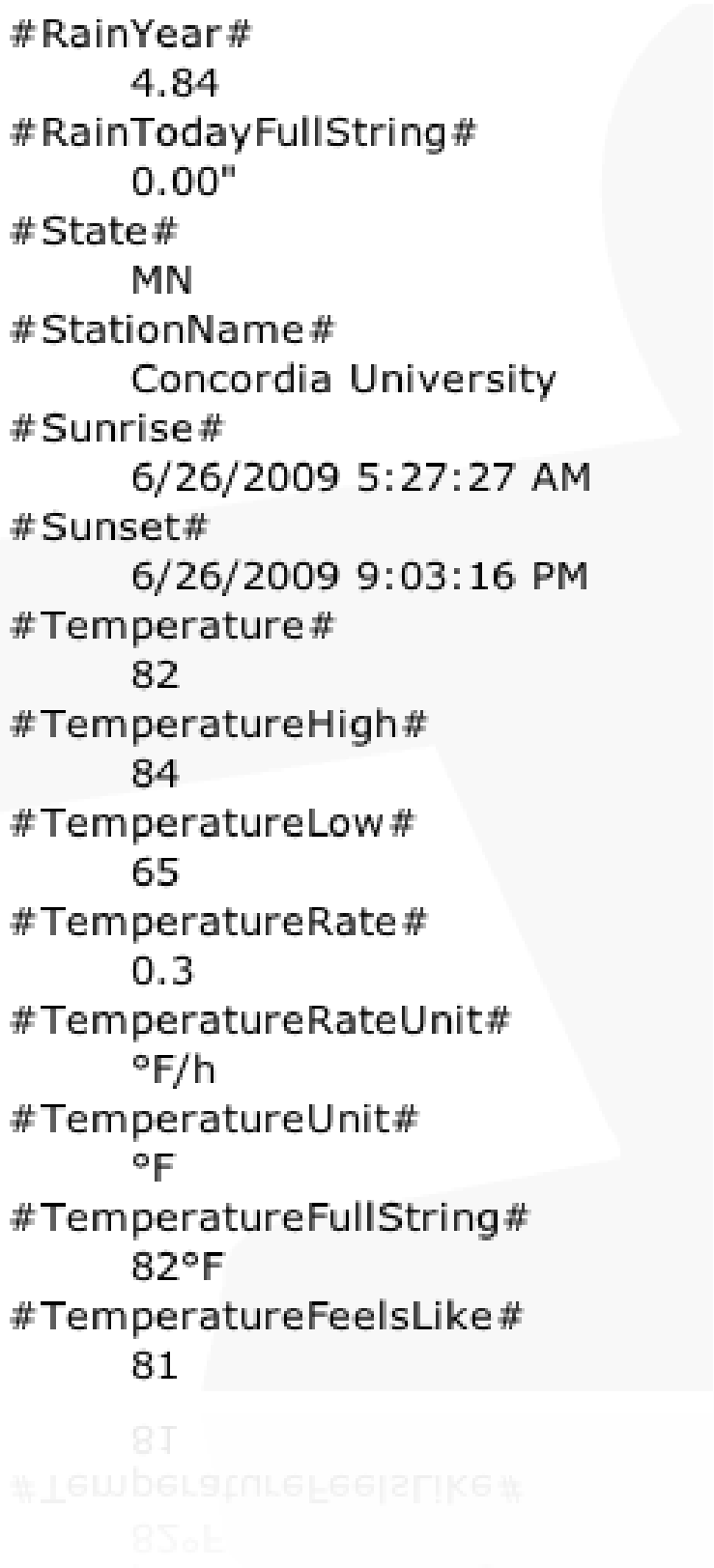


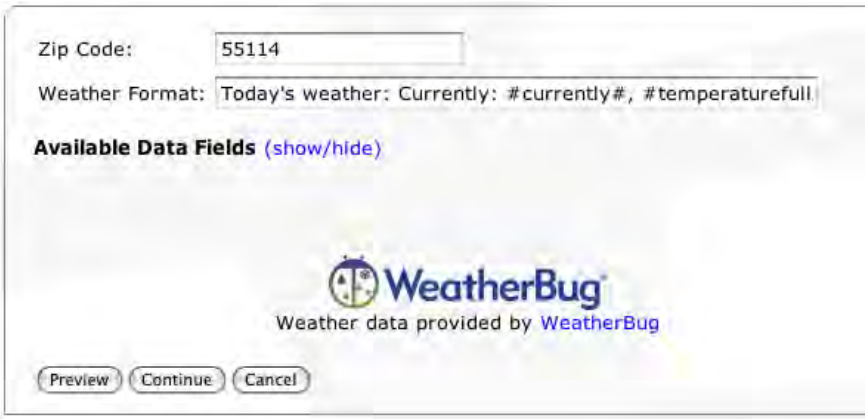
FIGURE 17.7: Some of the data fields that are available for use

You may want to check the **Until Manually turned off** checkbox on the schedule form for all of your weather bulletins. This will leave these bulletins on until you manually remove them. Carousel will automatically update the weather data as it changes.

17.3 The Weather Crawls

Weather Crawls are made using the same method used to create a weather bulletin. The crawl options screen is shown in figure 17.8.

FIGURE 17.8: Weather crawl options



Enter your desired zip code in the **Zip Code** field. The weather plugin will find the nearest WeatherBug station and use it to gather weather data.

The **Weather Format** field lets you alter how your weather crawl is displayed. It uses the same *data field* concept from the standard weather bulletins. Whenever Carousel comes across one of the magic data fields, it will replace that field with the corresponding data from the weather station. To see a list of the available data fields for your weather crawl, click the **show/hide** link next to **Available Data Fields**.

To preview what your crawl will look like after Carousel parses the **Weather Format** string, click the **Preview** button, as seen in figure 17.9 on the next page.

When you are happy with your weather crawl, click **Continue** and schedule the bulletin as usual. The bulletin will appear as a crawl on your channel, using the settings for the crawl properties for that zone. You can adjust these settings by following the steps in section 7.3.3 on page 65.

Typically, the weather crawl is pretty long. Therefore, if you would like to use your crawl for important information, you may want to refrain from using the weather crawl. It will make it unlikely that people will notice your crawl.

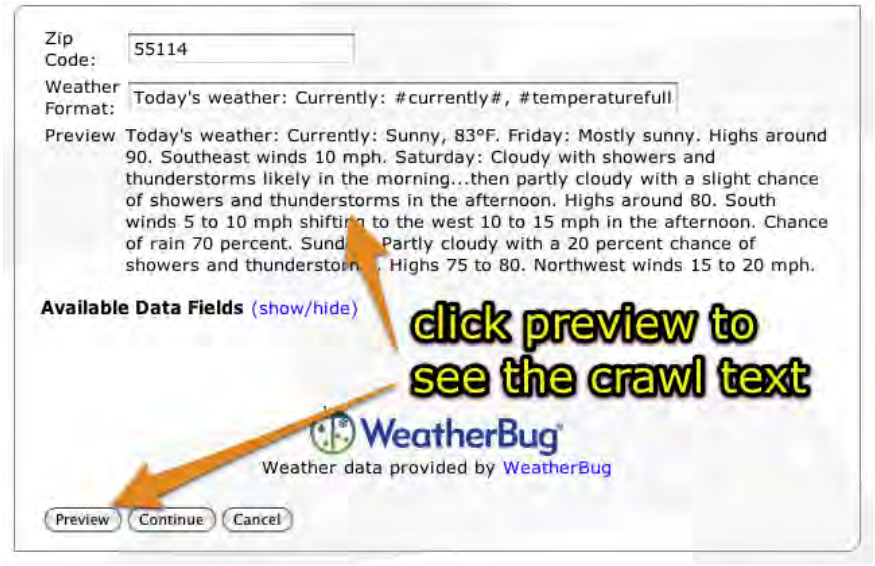

Zip Code:
55114
Weather Format:
Today's weather: Currently: #currently#, #temperaturefull
Preview
Today's weather: Currently: Sunny, 83°F. Friday: Mostly sunny. Highs around 90. Southeast winds 10 mph. Saturday: Cloudy with showers and thunderstorms likely in the morning...then partly cloudy with a slight chance of showers and thunderstorms in the afternoon. Highs around 80. South winds 5 to 10 mph shifting to the west 10 to 15 mph in the afternoon. Chance of rain 70 percent. Sund Partly cloudy with a 20 percent chance of showers and thunderstorm Highs 75 to 80. Northwest winds 15 to 20 mph.
Available Data Fields (show/hide)
click preview to see the crawl text
WeatherBug
Weather data provided by WeatherBug
Preview
Continue
Cancel

FIGURE 17.9: Previewing the weather crawl

17.4 Cable Display Bulletins

At this point, we have good news and bad news. The good news is that if you do not own Cablecast, you can skip this section, as this is about Cable Display for Carousel, a plug-in that reads television schedules from Cablecast and displays the information as a bulletin in Carousel. If you have Cablecast, the bad news is that you have to read it. Of course, by reading this section you will learn of all the wonderful things that Cable Display will do for you and in the end, that is good news.

Good/Bad news out of the way, let's explore the splendor of the Cable Display for Carousel plug-in, which we get to from **New Bulletin** on the **Main Menu**, **Dynamic** tab and then selecting **Cable Display**.

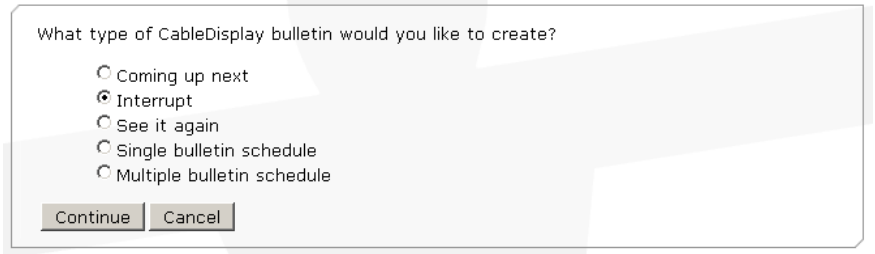
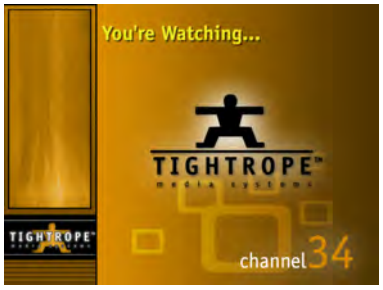
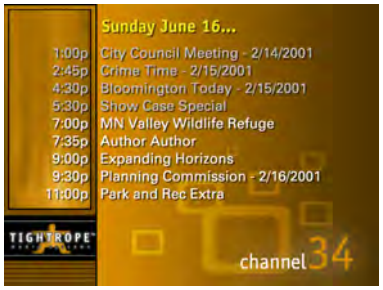


FIGURE 17.10: Selecting a Cable Display Bulletin Type

The first form that you see, shown in figure 17.10 on the preceding page, will ask you **What type of Cable Display bulletin would you like to create?** There are five types, shown in the table that is on the next page:

Coming up next	Displays before a show, typically to advertise the show's title and any other information the viewer may find relevant.	
Interrupt	This is a slide that shows during the program. It works well with confidence monitoring equipment in that this is the graphic that will air on your channel in the event of a technical difficulty.	
See it again	These slides display after a show is done, typically to advertise the times the show will repeat or any other information the viewer might find interesting, like where to get a dub of the program.	
Single bulletin schedule	These are often used to show *"What's on deck"*. They are nice to have in addition to multi-bulletin schedules, which can be cumbersome to wade through.	
Multiple bulletin schedule	This is for showing lots of scheduling information across multiple bulletins.	

Interrupt, *Coming up next*, and *See it again* bulletins are all automated alert bulletins. That is, they are inactive alert pages until the Cable Display plug-in activates them at the appropriate time.

Example: Forty five seconds before a show airs, three *Coming up next* bulletins are activated. The first advertises the show's title. The second gives it's V-Chip rating and the third advertises producer contact and dub request information. The first two bulletins are set for a dwell time of 15 seconds while the last has a dwell time of 30 seconds. Since Carousel will automatically disable these alert pages after 15 seconds, the last page only appears for 15 seconds, just like the other two bulletins.

Carousel is always multitasking. It tries to display bulletins exactly as you program it too, but sometimes it's too busy doing other important things, like playing a video and what not. This is why we give it extra time on the last bulletin, so that it doesn't try to loop back around to the first *Coming up next* slide.

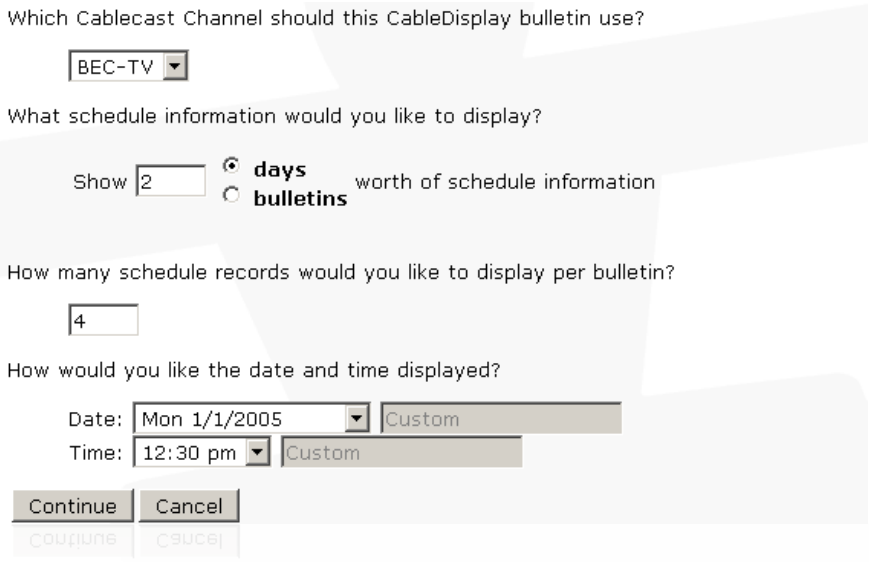
Cable Display updates bulletins automatically.

Remember, each bulletin that you create in the Cable Display plug-in will automatically update itself. Once you create a schedule bulletin, Cable Display will walk through the schedule without your intervention. If you make a change to your schedule, all bulletins affected will automatically update themselves. This is the magic of the Cable Display Plug-in.

17.4.1 Setting Cable Display Bulletin Properties

After you select the type of Cable Display bulletin that you would like to create, you will be presented with a properties form that is specific to your choice. Some of the details will be unique to your bulletin. Look at the form and read the descriptions below, ignoring those that are not applicable for your bulletin. Pay close attention to the timing of *Coming up next* and *See it again* graphics, found in the second item:

FIGURE 17.11: Cable Display Bulletin Properties for Multiple Bulletin Schedule



Which Cablecast Channel... : This pop-down list selects the Cablecast channel that Carousel should retrieve data from for its scheduling information.

How long would you like to display… : You are choosing the time frame that Cable Display will allocate for *all bulletins of this type*. That is, if you have one bulletin that is a *Coming up next* graphic, then that bulletin will be displayed for the amount of time that you depict here. If you have five bulletins of the *Coming up next* variety, then Cable Display will allocate the amount of time you enter in this field for all five bulletins. You can adjust each bulletin's dwell time in that bulletin's standard properties form, after you schedule it.

! → Pay close attention to Cablecast's *interstitial length* setting.

The sum of this value for *Coming up next* and *See it again* should be a few seconds longer than Cablecast's interstitial length. The interstitial length is an amount of time, in seconds, that Cablecast forces between two shows. If two shows are back-to-back, then there should be just enough time to get through both (sets of) bulletins before the next show airs.

This field only applies to *Coming up next* and *See it again* bulletins.

If you have multiple bulletins of the same type, you can enter unique values for each bulletin, but the implications are too mindboggling to even fathom, especially if earlier version have a lower number than later bulletins. Instead, when it comes to this field, bulletins of the same type should have the same value.

What schedule information… : For *Multiple bulletin schedule*, you need to specify the *total quantity* of shows that you would like to display. You can limit this number by either *days* or *bulletins*. Cable Display will only show one day per bulletin.

Because Cable Display only shows one day per bulletin in a *Multiple Bulletin schedule*, you only need to show the date once, displaying only the time next to the show's run.

How many schedule records… : In *Single bulletin* and *Multiple bulletin schedules*, Cable Display needs to know how many shows will appear on each bulletin. For *Single bulletin schedule*, this will be the total number of shows to display. For *Multiple bulletin schedules*, each bulletin will have this maximum number of shows *per* bulletin.

How would you like the date… : We are choosing the date and time format for our bulletin. We can get fancy by choosing the custom option. A table and examples of custom formatting are provided in appendix F on page 261.

17.4.2 Editing the Cable Display Bulletin

Accepting a few added features, editing a Cable Display bulletin is the same as a standard bulletin, which we cover in chapter 13 on page 103.

The key differences in Cable Display bulletins are the special text fields that we can add. A list of the available fields is provided below the standard forms. Simply include the "#" symbols before and after the desired filed to tell Cable Display to insert the text at that spot.

Example: To insert the time and date that a program will repeat, enter "`#RunRepeat#`" into one of the fields.

Conditional Text

Sometimes you would like to include text in a bulletin, but only if a particular field has data. After all, what sense does, "`This producer can be reached at for`

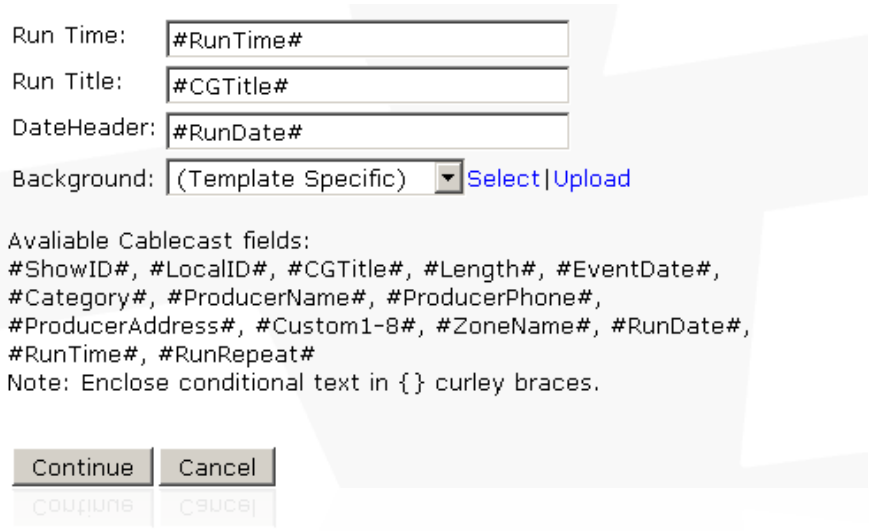


FIGURE 17.12: Editing Cable Display Bulletins

`more information`." make? To accommodate conditional text, enclose it in curly braces {}.

Example: "`{This producer can be reached at #ProducerPhone#.}`"

In the above example, only when there is a phone number will this information be displayed.

Repeating Fields and Headers

For most Cable Display bulletins, fields will need to repeat. You do this by setting the **Block Options** for the template's block that holds the CableDisplay information. We discuss the settings in section 19.7.3 on page 200, *Repeating Blocks in Dynamic Bulletins*.

If you are using an older web browser, enter the word "`Header`" after the template's fields name.

Example: a "`#RunDate#`" entered into a template field called "`Date`" would appear for each listed show. If it were entered into a template field called "`DateHeader`", it would only appear once.

Repeating fields will repeat all by themselves. Simply enter the repeating field into the template at the spot where you want the list to start. Cable Display will automatically insert the next item below the previous.

Editing The Look of your Cable Display Bulletin

It is extremely important that you edit the look of your Cable Display bulletin, at least changing the background, which includes *Tightrope's* logo and a channel designation of *34*.

The example bulletins are a great starting point. Use them as a guide to see how basic information is entered into the type of Cable Display bulletin that you are creating. Pay special attention to how certain fields are entered, such as "`DateHeader`" fields, which do not repeat.

You may add or delete fields to your Cable Display bulletin, which is especially useful when creating non-standard bulletins, such as *Coming up next* bulletins with V-Chip or producer information.

Edit your bulletin using the template editor. We cover this process in section 19.7 on page 186.

17.4.3 Scheduling and Standard Properties

Scheduling a Cable Display bulletin is accomplished using the same method outlined in section 13.3 on page 107. Cable Display bulletins have a unique purpose and therefore you'll want to keep some things in mind.

First, it is probably best to check the **Until Manually turned off** option, as you will always want these bulletins active and Cable Display will automatically update them with current Cablecast information.

If you want to change the look of your bulletins, such as for a season or special event, you can make a copy of the them and change the old ones to a status of saved. When the event or season is over, just delete the special versions and re-activate the saved bulletins. We cover saved bulletins in section 18.2 on page 173. We cover copying bulletins in section 18.1.5 on page 171.

Second, when working with *Coming up next* and *See it again* bulletins, you do not need to adjust the dwell time, found in the standard properties form after the scheduling form, unless there are multiple bulletins. In that case, each bulletin will need only its share of the value that you entered back in section 17.4.1 on page 137, **How long would you like to display…**. Set the dwell time for the last bulletins that it goes a little past this value.

Example: If you have three *See it again* bulletins and the total amount of time given to these graphics is 45 seconds, then set the first two's dwell time to "`15`" seconds and the last bulletin's to "`20`" seconds, for a total of 50 seconds. That way if there is any delay in Carousel's timing, it won't loop back to the first *See it again* bulletin.

17.5 The RSS Bulletins

RSS stands for *Really Simple Syndication*[3]. It's an XML specification that publishers and data providers use to syndicate summary information. This *information* could be a news story, word of the day, the latest production data or anything else that you could dream up. What is more, RSS data can come from a web site, database or any other application. In fact, Carousel publishes its bulletins in RSS, making it possible to see a summary of bulletins using any RSS reader.

→ section 20.2 on page 206, *RSS Output*

There are different flavors of RSS in the wild. Carousel supports RSS and Atom feeds that are well formed. If Carousel doesn't display a feed, it is most likely non-standard, in which case, Carousel will not display it.

An RSS feed has a channel with many items, while an Atom feed contains a feed with many items. If you're not familiar with the specifics of RSS and Atom feed creatation, information on both is widely available online. When you create an EDS page, fields from RSS and Atom feeds are mapped to EDS placeholders.

[3] http://en.wikipedia.org/wiki/RSS

Carousel will detect the available fields from your chosen feed and list the available placeholders to you. There can be other data within an RSS feed, but Carousel can display data from the list of placeholders it gives you.

Carousel will make one or more bulletins using the RSS data. You can format the information in a variety of ways, specifying the information you want to show, the number of items per page and number of pages that you want to display.

Verify that you have licensing permission to show the information that you are displaying. Different web sites have different policies regarding the use of their RSS information. Some limit viewing to personal use, which is not compatible with most digital signage applications.

17.5.1 Creating an RSS Bulletin

To create an RSS bulletin, choose **Make a New Bulletin** from the main menu, click the **Dynamic** tab and choose **RSS Bulletin**.

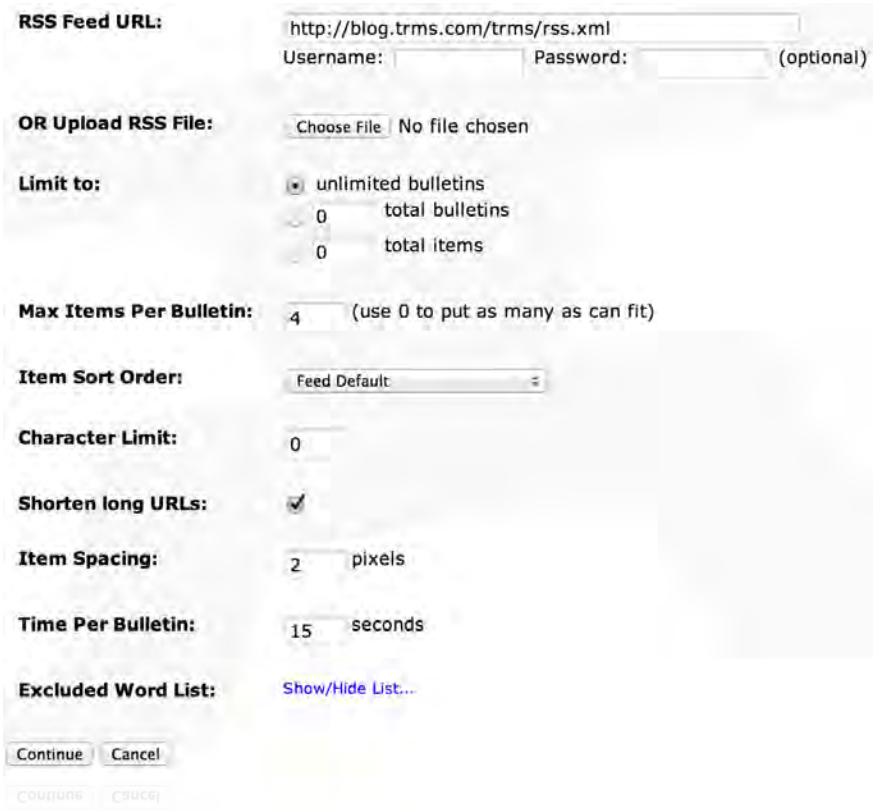


FIGURE 17.13: Editing the RSS properties

Before we can edit the presentation of the RSS information, we must tell Carousel how we would like it processed. The first form that we see is the one shown in figure 17.13. We'll explore each field from top to bottom.

RSS Feed URL : This is where you type the address of the RSS feed that you would like to reference.

Example: "`http://blog.trms.com/trms/rss.xml`"

Is it *RSS* or *XML*? XML is a generalized way to present *any* kind of data. By specifying what is in your data and how it should be presented, you can create a common way to handle certain kinds of information with multiple programs. RSS is an XML specification and the information in an RSS feed is represented in XML. In this section, we'll talk about an XML file with RSS data in it, which is the most accurate way to represent what is happening.

Username and Password : Some RSS feeds require a login to view them. If you are using a RSS feed that requires this, simply enter your username and password into these fields. Carousel will use *Basic*, *Digest*, or *NTLM authentication*.

This is a useful feature for people trying to access Microsoft SharePoint RSS feeds.

If your RSS feed is not authenticated, then leave these fields blank.

OR Upload RSS File : If instead you would like to upload an RSS file into Carousel, you can do so by clicking the browse button and selecting the file. Again, this must be a valid XML file with RSS data.

Limit to : Some feeds have hundreds of items. You may want to limit the number that you display and you can do so, either by bulletin or by total number of items.

Max Items Per Bulletin : Carousel needs to know ahead of time the number of items that will appear. Enter that number here.

The number of items will depend on the size of your zone, the font that you select and the maximum number of characters that you allow for a specific item.

Item Sort Order : You can sort the items in a feed by any of the fields in this pop-down list. The **Feed Default** option instructs Carousel to maintain the item order found in the XML file.

Character Limit : This is the maximum number of characters for the item's description. Carousel will attempt to truncate the item at the end of a sentence. If this is not possible, then it will pick the last word and add an ellipsis (. . .). A value of "0" will impose no limit on the number of characters.

Shorten long URLs : When checked, bulletins will shorten URLs whenever possible and appropriate to display just a domain name, such as trms.com. This will prevent a long URL from taking up a lot of space on a bulletin.

Item Spacing : This will insert "padding" between the items in the RSS feed. This value is in pixels, so to insert 10 pixels of space between the RSS items, enter the number "10".

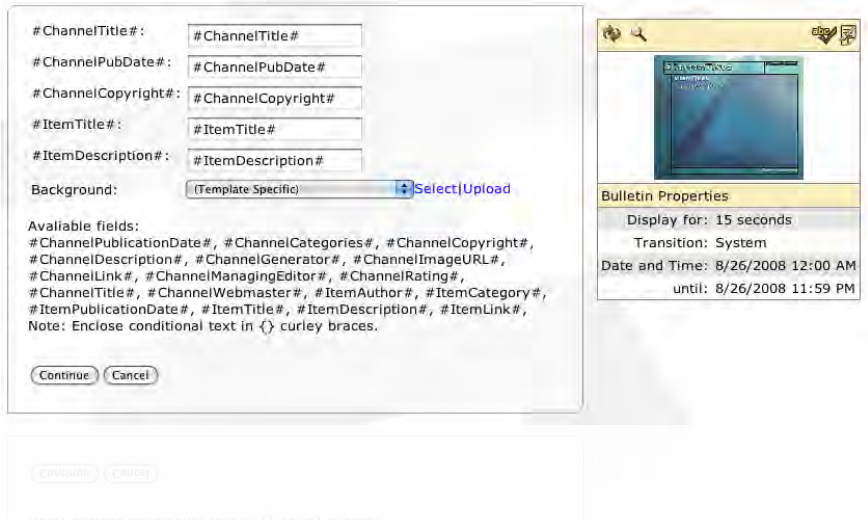
Time Per Bulletin : This adjust the dwell time for each bulletin.

Excluded Words : You can exclude items that contain certain words by adding them to this list. Separate each word with a comma.

If the item includes any of the words in this list, the *entire item* is omitted! That is, not just the word is excluded, but the entire item.

In addition to offensive words, you may also want to consider excluding words that are not appropriate to your environment, such as competitor's names or words associated with violence.

FIGURE 17.14: Editing an RSS Bulletin



When you are finished editing this form, click **Continue**. You will see the standard form used to edit a bulletin (figure 17.14). You will also notice that every field in the default RSS bulletin starts and ends with a '#' sign. As in editing a weather bulletin, editing an RSS bulletin involves placing special words between '#' signs, telling Carousel where to place the text. For a list of the various words that are available, look to the list labeled "`Available fields`". All of the fields that are available for use from the RSS feed will be listed.

Each field is self explanatory. You can delete, move or otherwise edit each of the fields as you see necessary by either using the Quick Edit palette or the template editor, covered in section 19.7 on page 186.

→ section 13.2 on page 104, *Editing and Creating Bulletins*

Display images in your RSS bulletins!

Some RSS feeds contain links to images[4]. In Carousel 5.2, you can display these images in your RSS feed. Look for a keyword called "#ItemImageURL#". This keyword should contain a URL to the image. To display these images, edit the RSS bulletin's template and add a Web Picture block. (See section 19.7.2 for more information on Web Picture blocks.) You can then add the #ItemImageURL# keyword to the URL field of the Web Picture block, and the images will be displayed[5].

Item titles and descriptions automatically repeat.

The "`#ItemTitle#`" and and "`#ItemDescription#`" fields will automatically repeat until the maximum number of items is reached, set in section 17.5.1. Simply enter the first item and its description and Carousel will create the rest immediately below. You can see an example of this in figure 17.15 on the next page.

17.5.2 Scheduling RSS

The rest of the RSS bulletin creation process is identical to that of a standard bulletin. You simply schedule it and modify the bulletin as you would one that you created with a template. Check out section 13.3 on page 107 for further information.

You may want to check the **Until Manually turned off** checkbox on the schedule form. This will leave this bulletin on until you manually remove it. Carousel will automatically update the RSS data as it changes.

[4] For example, Flickr (http://flickr.com) publishes photosets as an RSS feed that contains links to each photo.

[5] For more information, see http://blog.trms.com/john/2008/06/carousel-52-ima.html

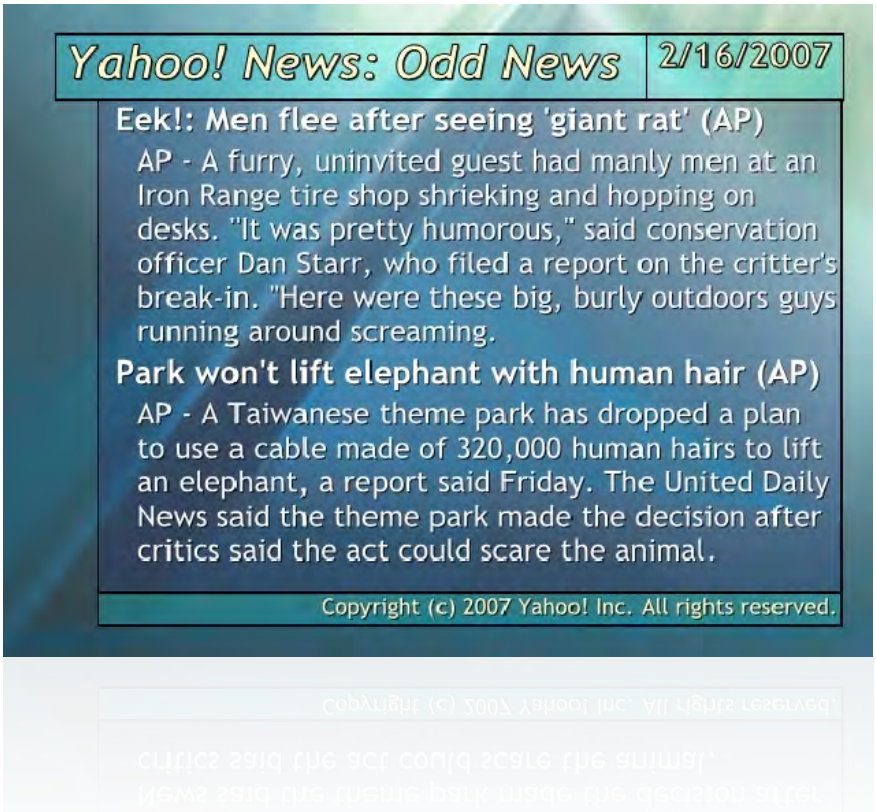

Yahoo! News: Odd News
2/16/2007
Eek!: Men flee after seeing 'giant rat' (AP)
AP - A furry, uninvited guest had manly men at an Iron Range tire shop shrieking and hopping on desks. "It was pretty humorous," said conservation officer Dan Starr, who filed a report on the critter's break-in. "Here were these big, burly outdoors guys running around screaming.
Park won't lift elephant with human hair (AP)
AP - A Taiwanese theme park has dropped a plan to use a cable made of 320,000 human hairs to lift an elephant, a report said Friday. The United Daily News said the theme park made the decision after critics said the act could scare the animal.
Copyright (c) 2007 Yahoo! Inc. All rights reserved.

FIGURE 17.15: The second item was automatically added after the first.

17.5.3 Troubleshooting RSS

When RSS feeds are not updating in Carousel the usual suspect is the network. It can also be the data in the feed or the bulletin layout. This section will help you troubleshoot why RSS is not updating.

Can't Create a RSS Bulletin

If you get the error in figure 17.16: "Could not read the feed URL. Please check that the URL is valid RSS or ATOM." when creating a bulletin, it means that Carousel can not download the feed. This either because the URL is not an RSS or Atom feed OR the Carousel server can not contact the URL.

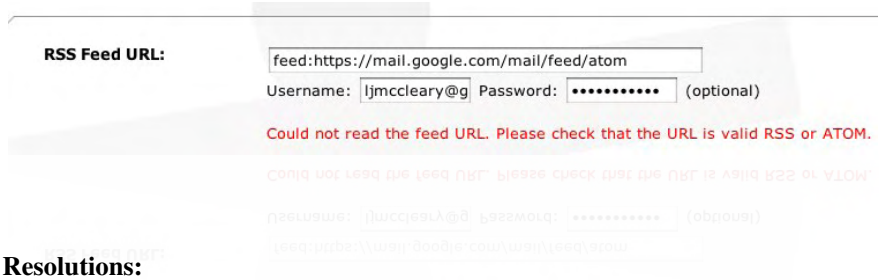

RSS Feed URL:
feed:https://mail.google.com/mail/feed/atom
Username: ljmccleary@g Password: •••••••••• (optional)
Could not read the feed URL. Please check that the URL is valid RSS or ATOM.

FIGURE 17.16: The error message seen when trying to read an invalid RSS or Atom feed.

Resolutions:

- Make sure the Carousel server can get to the internet.
- On the Carousel server, enter the feed into Internet Explorer and make sure it loads
- If you are behind a proxy server, be usre Carousel is configured correctly to use it.

- Verify that the data is actually formatted as valid RSS or Atom feed. A validator such as feedvalidator.org or validator.w3.org/feed/ can be helpful for this task.

The RSS bulletin does not update

If you can successfully create a bulletin but it only updates once, it is most likely a proxy server on your network. Carousel downloads the RSS data every 15 minutes. A proxy server caches data downloaded from the internet in an attempt to speed up your network, but in some cases proxy servers will cache RSS feed data too. Carousel displays a Last Updated date and time in the manage bulletins screen. This is updated every time it successfully downloads the data. If the data is old, then something was cached or the data was not updated from the publisher.

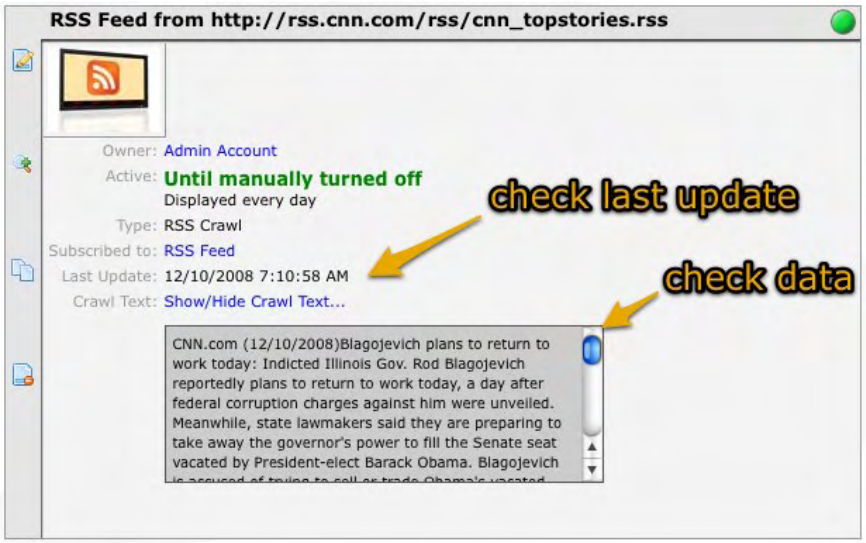

RSS Feed from http://rss.cnn.com/rss/cnn_topstories.rss
Owner: Admin Account
Active: Until manually turned off
Displayed every day
Type: RSS Crawl
Subscribed to: RSS Feed
Last Update: 12/10/2008 7:10:58 AM
Crawl Text: Show/Hide Crawl Text...
check last update
check data
CNN.com (12/10/2008)Blagojevich plans to return to work today: Indicted Illinois Gov. Rod Blagojevich reportedly plans to return to work today, a day after federal corruption charges against him were unveiled. Meanwhile, state lawmakers said they are preparing to take away the governor's power to fill the Senate seat vacated by President-elect Barack Obama. Blagojevich

FIGURE 17.17: Checking the Web Interface to see if the RSS feed has updated.

Resolutions:

- Bypass the proxy server
- Check the last update field in Carousel
- Check the data downloaded by Carousel to see if it is out of date, if it is it is most likely the proxy server.

The RSS bulletin seems out of date

Something to note about RSS feeds is that the "ChannelPubDate" field is only updated when the data changes, so if you have a RSS feed that has an old ChannelPubDate it will appear in Carousel that RSS is not updating. In reality, what is really happening is that the RSS feed has not added or updated the feed since the PubDate.

WebUI looks correct, but the Player shows old data

If the RSS bulletin and data look up to date in the web interface, then your Carousel player may be offline. Check the player configuration to ensure that it is receiving

updates from the server.

17.6 The RSS Crawls

Create a crawl
Create a weather crawl
Create an RSS crawl
Choose a source from which Carousel will fetch and display RSS items (such as your favorite news site on the internet).

FIGURE 17.18: RSS crawl creation

The process of creating an RSS crawl is similar to creating an RSS bulletin. You select **Create an RSS Crawl** from the **New Bulletin** menu option of your favorite crawl zone. Once you do, you will be able to edit the properties of your RSS feed using the form in figure 17.19.

What information would you like to appear in the crawl?
RSS Feed URL:
http://blog.trms.com/trms/rss.xml
Username: tightrope
Password: ••••••••••
(optional)
Header Format:
#ChannelTitle# (#ChannelPubDate#)
Item Format:
#ItemTitle#: #ItemDescription#...
Item Limit:
0
Excluded Word List:
Show/Hide List...
Footer Format:
#ChannelCopyright#
Available Fields: #FeedUpdatedOn#, #FeedCategories#, #FeedSubtitle#, #FeedLink#, #FeedAuthors#, #FeedTitle#, #ItemAuthors#, #ItemCategory#, #ItemPublishedOn#, #ItemSummary#, #ItemContent#, #ItemLink#, #ItemTitle#,
Preview:
Tightrope Media Systems (6/7/2010)Announcing Carousel 6.0.3 and FrontDoor 5.3.4: We are excited to announce the release of Carousel 6.0.3 and FrontDoor 5.3.4. Continue Reading ... ...InfoComm 2010: The formula for success in digital signage is on display

FIGURE 17.19: The RSS Crawl Properties Form

From the top:

RSS Feed URL : This is the address of the feed.

Username and Password : Some RSS feeds require a login to view them. If you are using a RSS feed that requires this, simply enter your username and password into these fields. Carousel will use *Basic*, *Digest*, or *NTLM authentication*.

This is a useful feature for people trying to access Microsoft SharePoint RSS feeds.

Header Format : Enter the text that you would like to appear at the beginning of this crawl. Surround RSS fields with the "#" character. A list of available RSS fields is below the text entry field.

Item Format : Each item will include the text in this field. Again, a list of available RSS fields is below the text entry field.

Item Limit : You can limit the number of items that will be included in this crawl. A limit of "0" will remove the limit and display all available items.

Excluded Word List : Items that contain these words will be excluded from the display.

Footer Format : The text within this field will be displayed at the end of the feed.

Preview : You can test the feed by clicking preview icon .

This is a good way to see if your RSS link is working. It is also a good way to see if you are displaying a feed with too much information. If there are too many items, then you can set the **Item Limit** field to a lower number and refresh the preview to see if it worked.

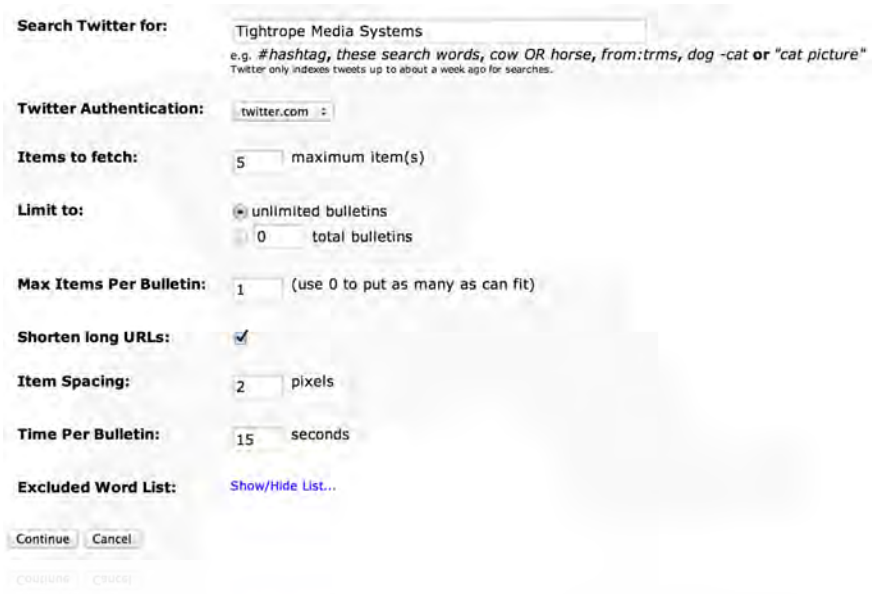
The process of scheduling and editing the properties of an RSS crawl is identical to that of a standard crawl. We cover that in section 14.4 on page 116.

You may want to check the **Until Manually turned off** checkbox on the schedule form. This will leave this bulletin on until you manually remove it. Carousel will automatically update the RSS data as it changes.

17.7 Twitter Bulletins

These bulletins pull information from Twitter based on a series of critera you enter.

FIGURE 17.20: Editing Twitter properties



Search Twitter for : Enter your search phrase for Twitter in this box. You can use a variety of search techniques to narrow your results, but note that Twitter only indexes tweets up to about one week in the past. Search examples are shown below the text entry box.

Twitter Authentication : Select the form of Authentication to use with Twitter from this box. Twitter bulletins can not pull data until authentication has been set up. Authentication is configured under "`External Data Source Authentication`" located in the **System Configuration** menu, and is covered in section 11.2.4 on page 97.

Items to fetch : This controls the number of items to fetch from Twitter whena a request is made. The larger this number, the longer it will take to communicate with Twitter.

Limit to : Here you can limit the number of bulletins that are created and displayed from the data feed.

Max Items Per Bulletin : Carousel needs to know ahead of time the number of items that will appear. Enter that number here.

Shorten long URLs : When checked, bulletins will shorten URLs whenever possible and appropriate to display just a domain name, such as trms.com. This will prevent a long URL from taking up a lot of space on a bulletin.

Item Spacing : This will insert "padding" between the items in the Twitter feed. This value is in pixels, so to insert 10 pixels of space between the Twitter items, enter the number "10".

Time Per Bulletin : This adjust the dwell time for each bulletin.

Excluded Words : You can exclude items that contain certain words by adding them to this list. Separate each word with a comma.

When you are finished editing this form, click **Continue**. You will see the standard form used to edit a bulletin. You will also notice that many fields in the default Twitter bulletin starts and ends with a '#' sign. As in editing a RSS bulletin, editing a Twitter bulletin involves placing special words between '#' signs, telling Carousel where to place the text. For a list of the various words that are available, look to the list labeled "`Available fields`". All of the fields that are available for use from the Twitter feed will be listed.

→ section 13.2 on page 104, *Editing and Creating Bulletins*

Each field is self explanatory. You can delete, move or otherwise edit each of the fields as you see necessary by either using the Quick Edit palette or the template editor, covered in section 19.7 on page 186.

17.8 Facebook Bulletins

These bulletins pull information from Facebook based on a series of critera you enter.

Facebook Authentication : Select the form of Authentication to use with Facebook from this box. This generally will be *View Public Posts (No Authentication)* unless you've setup authentication under a specific account. Authentication is configured under "`External Data Source Authentication`" located in the **System Configuration** menu, and is covered in section 11.2.4 on page 97.

Show content from : Use the radio buttons to choose between searching Facebook for a phrase or for a particular page.

Search Facebook for : This will display public posts matching the search phrase that is entered.

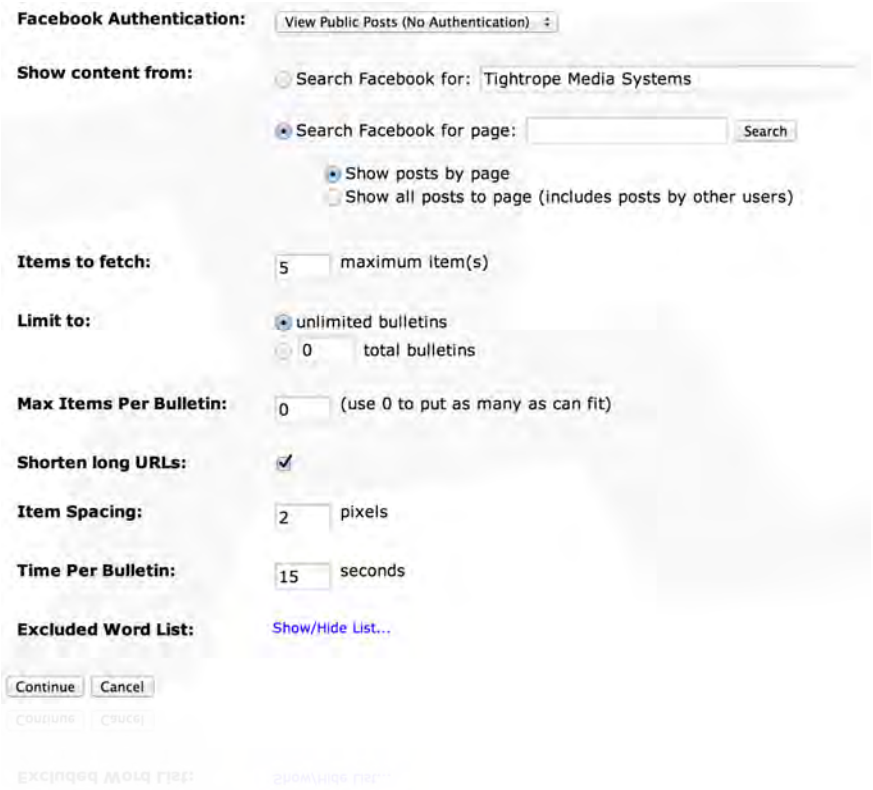
Search Facebook for page : This will allow you to search and display posts from a page selected from your search criteria. Enter the page name you are looking for and click the "`Search`" button. You can select the specific page you want to display from the drop-down list, or you can click "`Back to search`" to try another search term.

Select the radio button to select which posts to display from the selected page.

Show posts by page : When this is selected, only posts made by the page itself are displayed.

Show all posts to page : This option shows all posts to a page, including those made by other users.

FIGURE 17.21: Editing Facebook properties



Items to fetch : This controls the number of items to fetch from Facebook when a request is made. The larger this number, the longer it will take to communicate with Facebook.

Limit to : Here you can limit the number of bulletins that are created and displayed from the data feed.

Max Items Per Bulletin : Carousel needs to know ahead of time the number of items that will appear. Enter that number here.

Shorten long URLs : When checked, bulletins will shorten URLs whenever possible and appropriate to display just a domain name, such as trms.com. This will prevent a long URL from taking up a lot of space on a bulletin.

Item Spacing : This will insert "padding" between the items in the Facebook feed. This value is in pixels, so to insert 10 pixels of space between the Facebook items, enter the number "10".

Time Per Bulletin : This adjust the dwell time for each bulletin.

Excluded Words : You can exclude items that contain certain words by adding them to this list. Separate each word with a comma.

When you are finished editing this form, click **Continue**. You will see the standard form used to edit a bulletin. You will also notice that many fields in the default Facebook bulletin starts and ends with a '#' sign. As in editing a RSS bulletin, editing a Facebook bulletin involves placing special words between '#' signs, telling Carousel where to place the text. For a list of the various words that are available, look to the list labeled "`Available fields`". All of the fields that are available for use from the Facebook feed will be listed.

→ section 13.2 on page 104, *Editing and Creating Bulletins*

Each field is self explanatory. You can delete, move or otherwise edit each of the fields as you see necessary by either using the Quick Edit palette or the template editor, covered in section 19.7 on page 186.

Facebook Bulletins receive their information from an external data source setup by Tightrope Media Systems. The Carousel server will need to have access to the following address to function correctly: https://carousel-facebook-proxy.herokuapp.com

17.9 The Event Schedule Bulletins

The *Event Display System* (EDS) is a component of Carousel that is adept at showing meeting information for one or more meeting rooms. EDS can read scheduling information from Ad Astra, Dean Evans' Event Management System (EMS), Resource25, iCal[6] feeds, Exchange Server 2007 SP1 or 2010, and Carousel's own built-in schedule.

17.9.1 Creating an EDS Bulletin

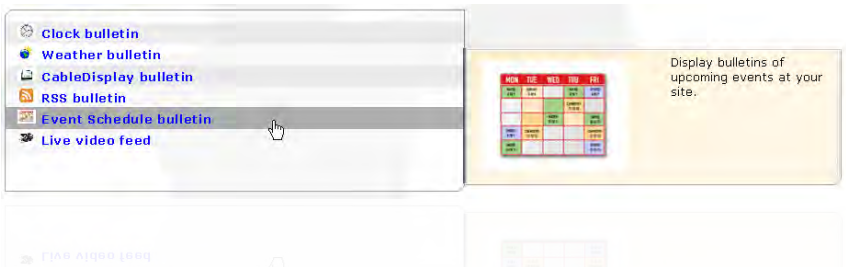


FIGURE 17.22: EDS bulletin creation

To create an EDS bulletin, click **New Bulletin** from the **Main Menu**, click the **Dynamic** tab and select **Event Schedule Bulletin**.

You'll be asked about the location of the scheduling data. If you select **Carousel** from the first pop-down list, then you will choose the zone that contains the scheduling data.

Each zone in Carousel may contain a schedule for EDS. You do not have to select the current zone's schedule. This lets you create a single schedule, and have bulletins on multiple zones all display the same schedule.

If you select **iCal**, you'll be asked to enter the URL to the iCal feed.

17.9.2 Setting Up Dean Evans EMS or Ad Astra for EDS

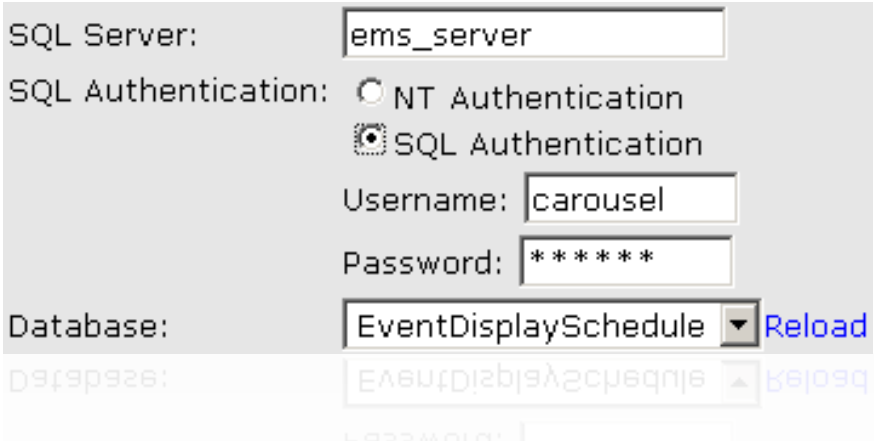
If you select **DEA EMS/proxy** or **Ad Astra**, then you will see the database properties form in figure 17.23 on the facing page.

SQL Server : This is the name of the SQL server, which is hosting the database that the event management software is using. This might be a server name or an IP address.

Authentication : Some servers use *NT Authentication* and others use the SQL server's authentication. Either way, choose the authentication method and then enter the username and password into the correct fields.

[6] http://en.wikipedia.org/wiki/ICalendar

FIGURE 17.23: Selecting a Database for EDS



Database : Once the authentication information is entered, you might see the list of databases in the **Database** list. If you do not, click the **Reload** link, then select the event management database from the list.

Regardless of the source of your data, you may choose from three methods of grouping scheduled events:

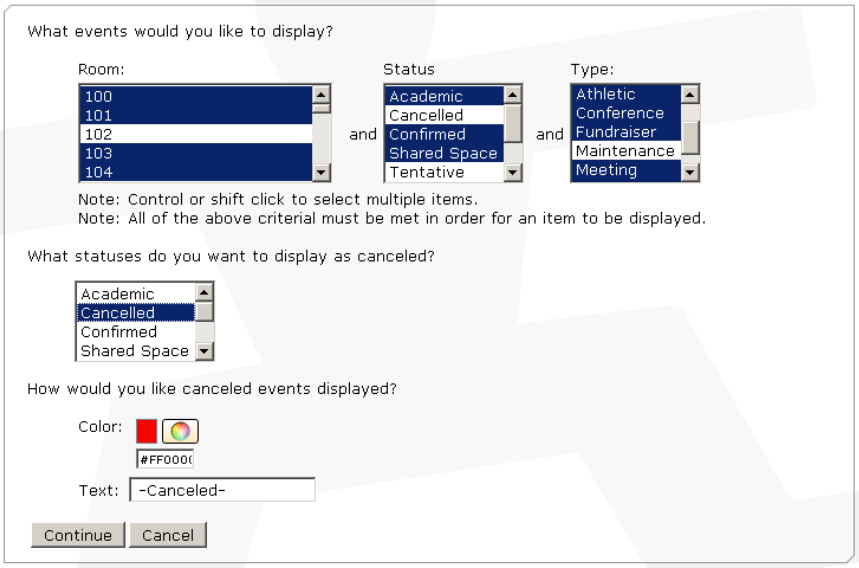
Ungrouped : Each item will be listed by the time the event will happen.

By Room : All events will be listed by the room in alphanumeric order and then by time. The room will be listed and then each event will be listed below.

By Time : A time will be listed and each event that matches that time will be listed beneath. This is useful when events happen at exactly the same time, like in a classroom situation.

17.9.3 Editing EMS and Ad Astra Properties

FIGURE 17.24: The EMS and Ad Astra Bulletin Properties Form



If you are creating an EDS bulletin from an Ad Astra or EMS database, then you have some additional options that are not applicable to those creating a bulletin

using Carousel's scheduler. These properties are displayed in figure 17.24 on the previous page.

! → The top section of the form asks **What events would you like to display?** Each multi-select box represents a filter. Within each box, you may select as many of the items that you wish. Only those items that match an item in *all three* boxes will be displayed.

Example: Looking at figure 17.24, you can see that an event in room "`101`" with a status of "`Tentative`" that is of a type "`Athletic`" will *not* be displayed, because "`Tentative`" is not selected as an event that will appear.

You may display canceled events so that people know when they arrive that the event is not taking place. If you would like to display canceled events, then select the relevant statuses from the multi-select that is labeled, **What statuses do you want to display as canceled?** We can select one or more statuses from this list. Next, pick a color for these events and add some text to precede the event's title.

When you are finished, click the **Continue** button.

17.9.4 Setting Up Resource25 for EDS

Carousel uses the Resource25 XML API to pull data through a HTTP connection. We have tested the integration with version 10 of R25.

Carousel pulls the *r25:space_reservations* namespace. In most cases this is found at an address that looks something like:

Example: "`http://myserver.edu/ws10/wrd/run/rm_reservations.xml?space_query_id=1694999`"

Here is an example of the XML data Carousel is looking for:

Code

```
<?xml version="1.0" encoding="utf-8"?>
<r25:space_reservations xmlns:r25="http://www.collegenet.com/r25"
        xmlns:xl="http://www.w3.org/1999/xlink" pubdate="2010-06-17T12:16:46-05:00" >
<r25:space_reservation xl:href="reservation.xml?rsrv_id=12713412" >
  <r25:reservation_id>12713412</r25:reservation_id>
  <r25:reservation_type>1</r25:reservation_type>
  <r25:reservation_start_dt>2010-06-17T00:00:00-05:00</r25:reservation_start_dt>
  <r25:reservation_end_dt>2010-06-17T23:59:00-05:00</r25:reservation_end_dt>
  <r25:act_head_count>0</r25:act_head_count>
  <r25:shared>F</r25:shared>
  <r25:reservation_state>1</r25:reservation_state>
  <r25:spaces xl:href="space.xml?space_id=58" >
   <r25:space_id>58</r25:space_id>
   <r25:space_name>Conference Room</r25:space_name>
   <r25:related_space_id/>
   <r25:related_space_name/>
  </r25:spaces>
  <r25:layout_id>3</r25:layout_id>
  <r25:layout_name>Meeting</r25:layout_name>
  <r25:reservation_comment_id/>
  <r25:reservation_comments/>
  <r25:space_instruction_id/>
  <r25:space_instructions/>
  <r25:registration_url/>
  <r25:event xl:href="event.xml?event_id=522375" >
   <r25:event_id>522375</r25:event_id>
   <r25:event_locator>2010-TRMS</r25:event_locator>
   <r25:event_name>Code Review</r25:event_name>
   <r25:event_title/>
   <r25:event_type_name>Development</r25:event_type_name>
   <r25:organization_id xl:href="organization.xml?organization_id=889" >889</r25:organization_id>
   <r25:organization_name>Dev Team</r25:organization_name>
   <r25:pre_event_dt>2010-06-17T00:00:00-05:00</r25:pre_event_dt>
   <r25:event_start_dt>2010-06-17T00:00:00-05:00</r25:event_start_dt>
   <r25:event_end_dt>2010-06-17T23:59:00-05:00</r25:event_end_dt>
   <r25:post_event_dt>2010-06-17T23:59:00-05:00</r25:post_event_dt>
   <r25:profile_id>1229356</r25:profile_id>
   <r25:profile_name>Rsrv_1229356</r25:profile_name>
   <r25:expected_count>0</r25:expected_count>
   <r25:registered_count>0</r25:registered_count>
  </r25:event>
  <r25:last_mod_user>R25DMUser</r25:last_mod_user>
  <r25:last_mod_dt>2010-03-11T13:48:06-06:00</r25:last_mod_dt>
 </r25:space_reservation>
</r25:space_reservations>
```

Enter the URL to `rm_reservations` xml data, and the username/password you would like Carousel to connect with. Carousel will use *Basic*, *Digest*, or *NTLM authentication*.

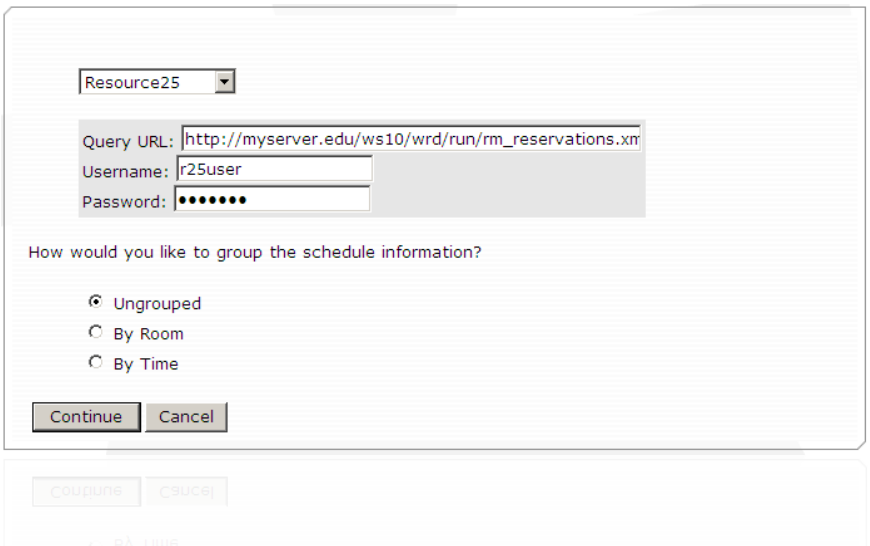


FIGURE 17.25: An example configuration for Resource25

You can add any additional query string parameters you need to filter this dataset down to what you want. For example, you would want to restrict this URL to only pull reservations for a particular room or building. Refer to your Resource25 administrator on creating the correct query arguments. An example restriction is illustrated in figure 17.26.

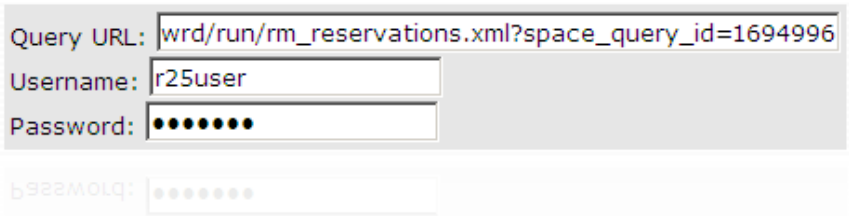


FIGURE 17.26: Here we are restricting the space to a specific ID number.

In section 17.9.6 on the next page, when you create an EDS page, you'll be mapping information in the Resource25 database to the Carousel page. The following fields from the XML in Resource25 are mapped to the EDS placeholders:

```
#Time# = r25:event/r25:event_start_dt
#EndTime# = r25:event/r25:event_end_dt
#Event# = r25:event/r25:event_name
#Description# = r25:event/r25:event_title
#Organization# = r25:event/r25:organization_name
#Room# = r25:spaces/r25:space_name
```

Because the queries on R25 requests can be taxing on the R25 server, we have added a special configuration to the Carousel service to limit the frequency that the service updates the R25 data. Carousel will still expire and remove old events from the bulletins, this only adjusts how often we fetch the data from R25.

To turn this feature on, you will need to modify a file on your Carousel server, which is located in the following directory:

```
D:\TRMS\Services\Carousel\TRMS.Services.Carousel.exe.config
```

You'll want to change the value in the following key, where the entry in *value* is in minutes:

```
<add key="EDS_R25_UpdateInterval" value="15" />
```

17.9.5 Setting Up Exchange Server 2007 SP1 and 2010 for EDS

Carousel can connect to Microsoft Exchange servers to get calendar information. This feature is compatible with Exchange 2007 SP1 and 2010. Carousel uses the Exchange Web Services (EWS) to communicate the Exchange server.

Make sure your server is configured to support EWS!

Carousel pulls the list of private and public calendars associated with your account, as shown in figure 17.27.

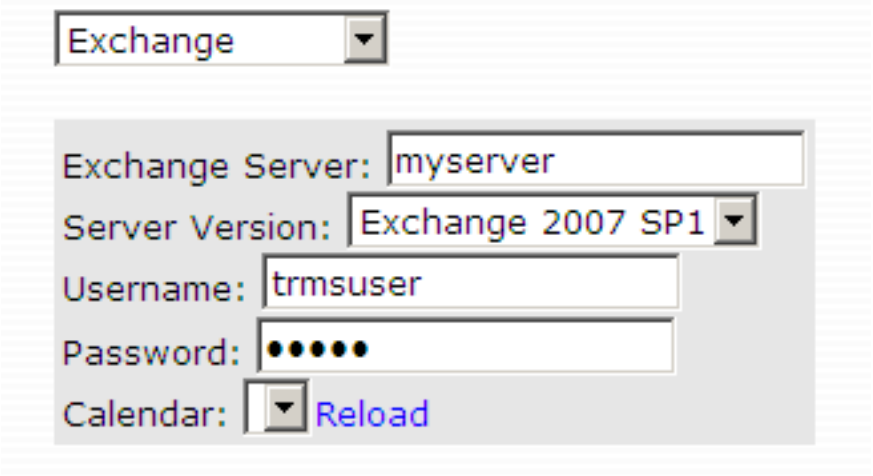


FIGURE 17.27: In this screen shot, there are no calendars, but you can see that this is what setting up an Exchange server within carousel looks like.

Carousel maps the following fields from the Exchange appointment to the EDS placeholders:

```
#Time# = appointment.Start
#EndTime# = appointment.End
#Event# = appointment.Subject
#Description# = appointment.Body
#Room# = appointment.Location
```

Use these symbols when creating an EDS page in section 17.9.6.

17.9.6 Editing EDS Properties

Carousel can treat EDS data in a number of different ways. You decide these parameters with the EDS properties form, figure 17.28 on the following page.

From the top:

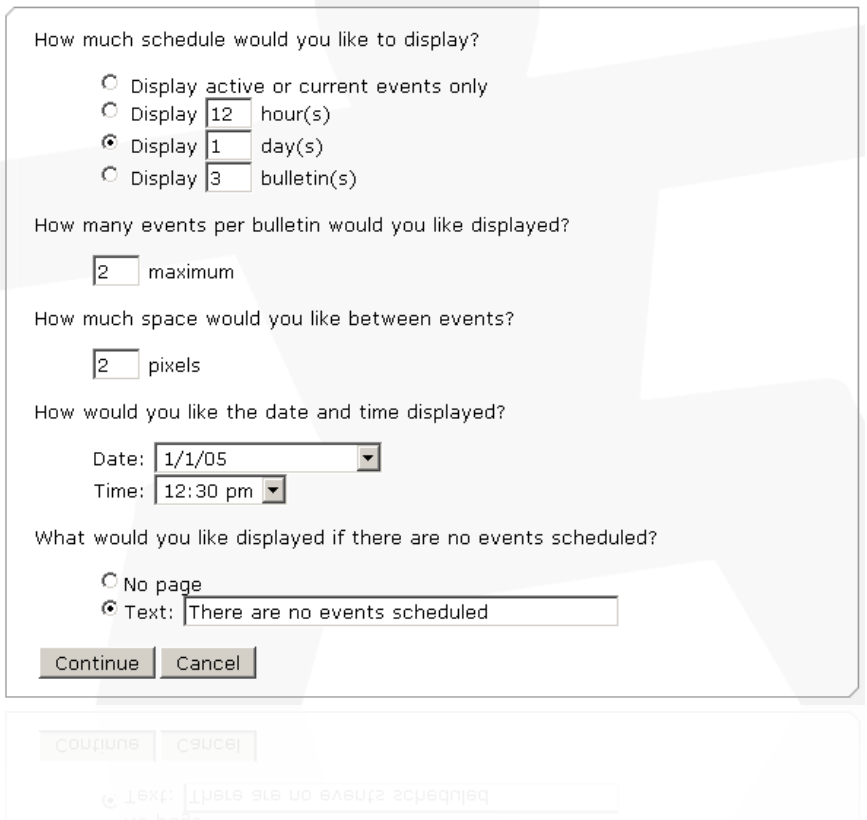
How much schedule. . . : You can limit the type, number of days, hours or bulletins to display.

Display active or current events only : Active or current events will only display events currently happening. Events scheduled for later in the day won't be shown until their start time has been reached.

Display X hour(s) : This will show all events that start within the next X hour(s).

Display X calendar day(s) : Calendar days are defined as the time between 12:00AM and 11:59PM. If you select one calendar day, it will only show events through 11:59 tonight.

FIGURE 17.28: EDS Properties


How much schedule would you like to display?
Display active or current events only
Display 12 hour(s)
Display 1 day(s)
Display 3 bulletin(s)
How many events per bulletin would you like displayed?
2 maximum
How much space would you like between events?
2 pixels
How would you like the date and time displayed?
Date: 1/1/05
Time: 12:30 pm
What would you like displayed if there are no events scheduled?
No page
Text: There are no events scheduled
Continue
Cancel

Display X bulletin(s) : This will show as many events as will fit on X bulletin(s). The total number of events displayed depends on the template design and text sizes assigned.

How many events per bulletin... : Carousel needs to know the number events to display per bulletin. This will depend on the dimensions of the zone, the font used and the length of each event's title and room information.

How much space between... : You can set a gap between each event. This number is given in pixels.

How would you like the date... : You can set the format of the date and time with these pop-down lists.

What would you like displayed if... : If no events are listed you can choose to have a message appear or to simply not show the bulletin. If this bulletin is on a zone dedicated to it, you'll want to show a message. If it is on a zone with other bulletins, then removing the bulletin is an acceptable option.

When you are finished with this form, click **Continue**.

Want EDS to "take over" a zone when there are events scheduled? Create it as an Alert bulletin (chapter 15 on page 117) and check the "`No Page`" option so that the bulletin isn't shown when there are no events scheduled. Now, EDS will be the *only* bulletin shown while there is schedule data, and when the schedule runs out, your regular bulletin cycle will resume.

You can use EDS to function as a digital room sign. Create an EDS bulletin as an alert bulletin (chapter 15 on page 117), select "`Display Active or Current events only`", and select "`No Page`" so the bulletin isn't shown when there are no active events. Now, whenever an event occurs, Carousel will create an alert bulletin for that event that interrupts your regular cycle for the duration of the event. When the event is finished, your regular cycle will resume. No more taping handwritten pieces of paper the wall!

17.9.7 Editing an EDS Bulletin

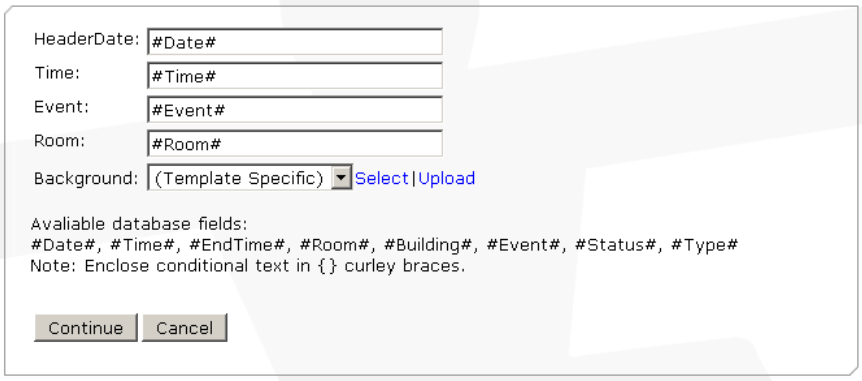


FIGURE 17.29: Editing an EDS Bulletin

Editing an EDS bulletin is just like editing a standard bulletin, except that EDS information is enclosed in "#" symbols.

Example: Whenever you want to show the time of an event, simply place "`#Time#`" somewhere in one of the fields.

Field names that start with "`Header`" show once.

If you want to show a field one time, and not repeat it with every event, then make the template's name start with "`Header`".

Example: You can see in figure 17.29 that the template's first field is labeled "`HeaderDate`". If we removed the word "`Header`" then the date would repeat down the page with each event. In our example, it is obvious that one bulletins that showed a single day of scheduling would work for this configuration. We see an example of this in figure 17.30.

FIGURE 17.30: You can see that the date in this EDS bulletin shows only once, whereas *The Simpson's* inspired events repeat down the bulletin.

If you enclose text within curly braces {}, you make it conditional on any fields that are within that text.

Example: If you type "`{This event ends at #EndTime#.}`", and the event does not include an end time, the entire sentence will be omitted.

17.10 EDS Bulletin Scheduling

EDS bulletins are scheduled like any other bulletin. In fact, all of the properties of an EDS bulletin behave the same as for a regular bulletin created from a template. We cover these properties in section 13.3 on page 107.

However, you'll want to remember that Carousel is dynamically updating the data in EDS bulletins, expiring the old events as they pass. If you check the **Until Manually turned off** box in the scheduling form, then this bulletin will run forever, automatically updating the scheduling information without intervention from you or your staff.

17.11 Scheduling EDS Within Carousel

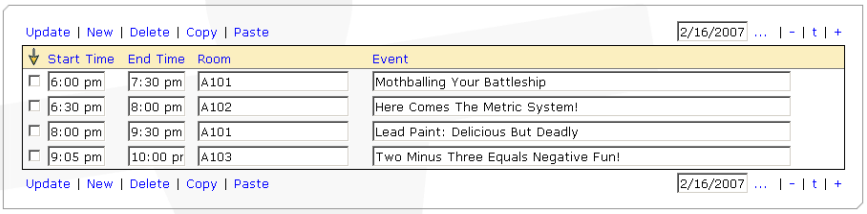


FIGURE 17.31: The Event Schedule Form

Each zone has an event schedule. Select **Event Schedule** from the **Main Menu**.

At the top of the form, you will find tools to help you with the events that you create.

Update : This refreshes the form, interpreting the start and end time and sorting accordingly. Any time that you hit the *Enter* key on your keyboard, you will be effectively clicking this link.

New : Click this link to create a new event.

Delete : To delete one or more items, select the according box and then click the delete link. To delete all items on the form, click the select all arrow and then click the **Delete** link.

Copy : To copy links in to the copy buffer, click this link.

Paste : To paste items from the copy buffer, click this link.

The Date : This is the day that you are looking. You may enter a new day directly into this field.

Ellipsis (. . .) : Clicking this link reveals a handy calendar, show in figure 17.32 on the facing page. With it, you can select a new date to schedule.

Minus (–) : Use this to decrement the day.

t : Use this link to go directly to today's date.

Plus (+) : Use this to increment the day.

Below these tools is the schedule, awaiting your entries. Each column is a link, which you can click on to sort the list by that item. Clicking the column again will toggle ascending/decending sorts.

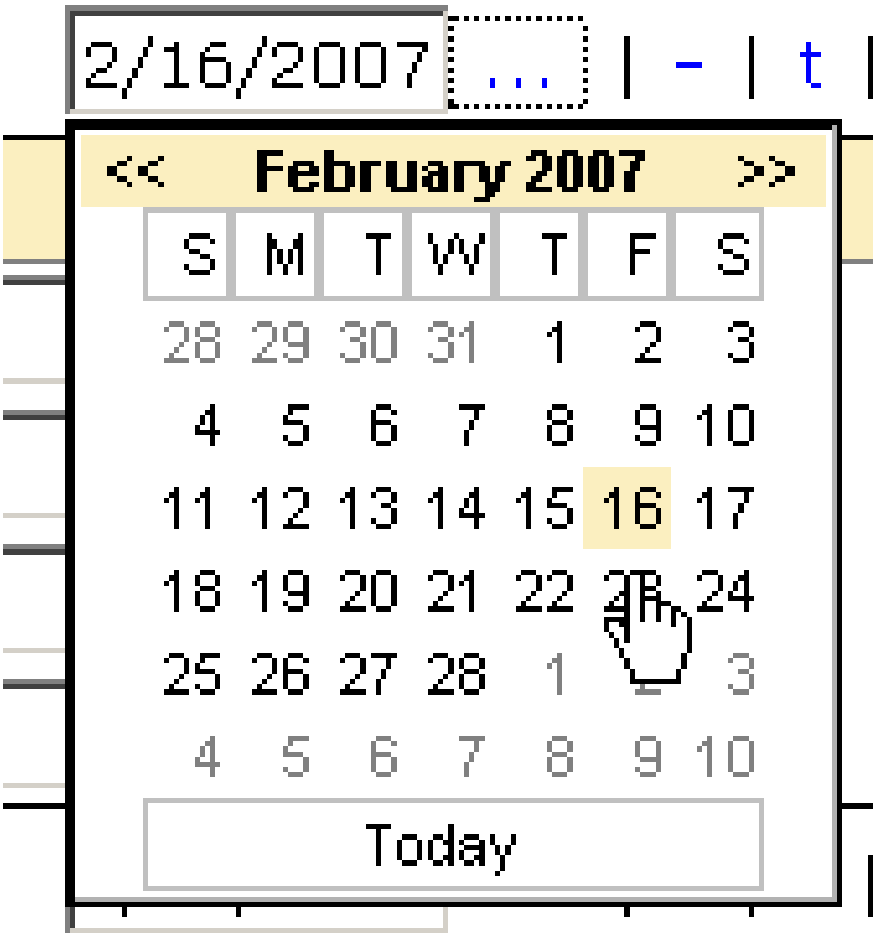


FIGURE 17.32: The EDS Calendar Tool

Enter the start and end time of the event into the **Start Time** and **End Time** fields.

You can type "`1:00pm`", "`1.00p`", "`1.00+`" or "`1+`". To Carousel, these are all the same. "`1-`" means "`1:00 AM`".

! →

Enter a room and event description into the next two fields. Be sure that the room information is entered accurately and consistently so that Carousel can group the rooms together, if that option was selected.

Do not close the web browser or navigate away from this page using the browser's navigation buttons without clicking the **Update** link. You will lose any changes that were made.

17.12 The Live Video Input Bulletins

Carousel works with optional hardware to overlay an external video feed. These feeds might be terrestrial or cable television, DVD players, a camera or some other source video source. They may also be a Windows Media stream on the network. To

FIGURE 17.33: The Live Video Form

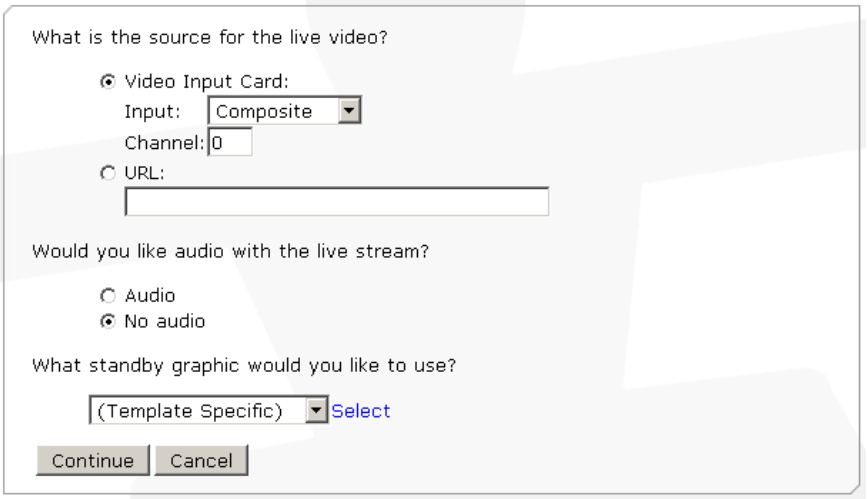
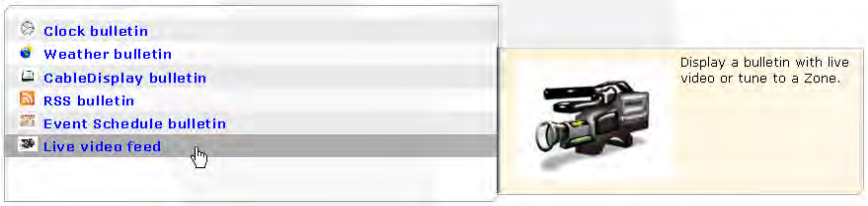


FIGURE 17.34: Live video bulletin creation



create one of these bulletins, click **New Bulletin** from the **Main Menu** and select the **Dynamic** tab. Choose **Live Video Feed**.

Your first choice is to pick the source of your video. If you are using video input hardware that has been installed on all of the Carousel players that show this zone, you can use the **Video Input Card** option. Select the input type from the **Input** pop-down list. If the signal is coming from a cable or terrestrial channel, enter the channel number in the **Channel** field.

If you are using a streaming source, choose the **URL** radio button and enter the link for the source. Carousel is compatible with Windows Media streaming and MPEG-4.

Next, select the **Audio** option if there is audio accompanied with the video. If there is, Carousel will automatically fade the background audio while this bulletin is active. Otherwise, choose the **No audio** option.

Finally, you may upload a graphic that will be used to fill the zone while there is no video source to replay. This is primarily useful when working with streaming media, as it is difficult to sense video loss with an external source.

From here, scheduling a live video feed is just like scheduling a regular bulletin created from a template, which we covered in section 13.3 on page 107. One thing to keep in mind, however, is that often you will want to specify the start and end time for these bulletins, as you may want a zone to go to a television channel during lunch and back to bulletins at all other times of the day.

17.13 Interactive Bulletins

Interactive bulletins allow Carousel users to upload or link to interactive content. This interactive content is displayed on a Carousel player and allows the viewer to interact with the digital signage. There are several different applications for interactivity including way finding, digital directories, and many more.

You will need a touch panel display for interactivity to work properly.

The Carousel Display Engine composites Internet Explorer together with the rest of the digital signage channel. This allows you to place interactive bulletins into any zone, alert bulletin, or full screen alert. You can also schedule different interactive content just like you would schedule any bulletin in Carousel. This is powerful and simple. Because Carousel is using Internet Explorer, the interactive content can be anything a standard web browser can display; web pages, dynamic web pages, flash animations, etc. Carousel is not locked into any proprietary technologies.

Carousel does not allow you to create interactive content, it just displays it. We decided using web standards for interactive content was a more powerful and flexible option for content creators.

Interactive bulletins are designed to be the only bulletin in a zone. They will not work like you expect if there are multiple bulletins in the zone.

To specify the interactive content you can either enter the Interactive URL which is a link to a the interactive content or Upload a file. This interactive content can be any web page, flash animation, or web element. The uploaded file is a .zip archive of content. This archive is extracted then hosted on the Carousel server and served the players with Internet Information Server (IIS).

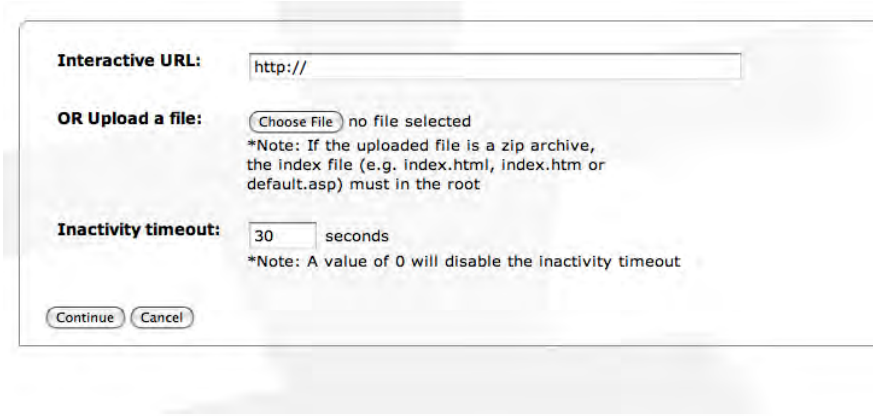

Interactive URL:
http://
OR Upload a file:
Choose File
no file selected
*Note: If the uploaded file is a zip archive, the index file (e.g. index.html, index.htm or default.asp) must in the root
Inactivity timeout:
30
seconds
*Note: A value of 0 will disable the inactivity timeout
Continue
Cancel

FIGURE 17.35: Interactive bulletin options

The Inactivity timeout allows you to set a duration of inactivity before Carousel will reset this bulletin. After there has been a specified time of inactivity Carousel will either go to the next bulletin in the rotation or navigate back to the Interactive URL. This will *'reset'* the interactive content back to the main screen.

If the Inactivity timeout is set to "0" (zero) the Interactive Bulletin will never time out. This is used if your interactive content has it's own timeout routine, or it is not desired to reset the display.

The Carousel Display Engine will normally exit if you double-click the mouse or hold the Escape key. When there is interactive content double-clicking is disabled so users can't accidentally close the display. To exit the Display Engine you will have to hold the Escape key.

Carousel sets the web browser to the size of the zone that is displaying the content. As you create content make sure you target the resolution of that zone. Carousel may crop the web site if it is not designed to fit in the zone. Carousel disables the built in scroll bars and navigation buttons, so that functionality will need to be built into the content if it extends past the zone resolution. For more tips on creating interactive content, check out our blog[7] and forum[8].

17.14 Dynamic Bulletin Errors

Carousel will notify you when there is a problem processing a dynamic bulletin. You will see red text on the right side noting that one ore more dynamic bulletins could not be rendered in the zone you're currently viewing.

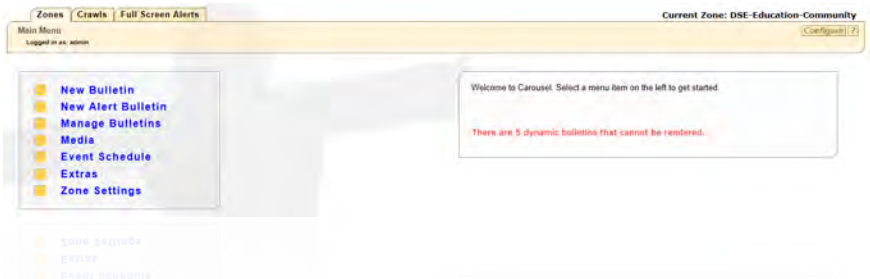


FIGURE 17.36: Dynamic bulletin error on main menu

When you view the **Manage Bulletins** menu in Carousel, you'll see dynamic bulletins marked with either a red or grey status, depending on the error.

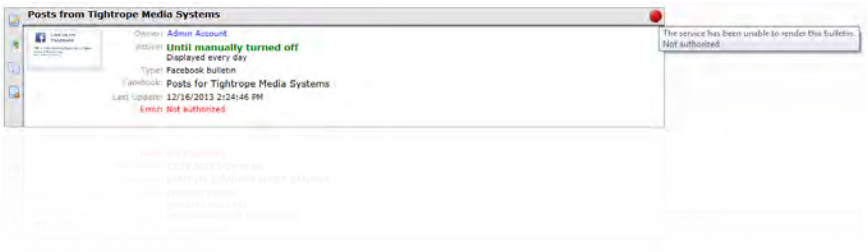
A grey status circle indicates that Carousel was able to connect to the feed, but there are currently no available items for it to display.

FIGURE 17.37: Dynamic bulletin with no items to render

A red status circle means that Carousel was unable to communicate with the source of the dynamic data feed. The reason for the error is posted at the bottom of the bulletin.

[7] http://blog.trms.com
[8] http://forum.trms.com

FIGURE 17.38: Dynamic bulletin without authorization


Posts from Tightrope Media Systems
Owner: Admin Account
Until manually turned off
Displayed every day
Type: Facebook bulletin
Facebook: Posts for Tightrope Media Systems
Last Update: 12/16/2013 2:24:46 PM
Error: Not authorized
The service has been unable to render this bulletin.
Not authorized

IV. Managing and Extras

"The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man."

—George Bernard Shaw

18 Managing Bulletins

Managing bulletins is a part of the everyday process of administrating a Carousel system. In this chapter, you will learn about the different bulletin lists, how to move bulletins between and within those lists, how to approve pages, run reports, and how to "clean house".

Carousel simplifies this process by keeping to a few common interfaces that will guide you through any management process.

All of the activity in this chapter takes place in the **Manage Bulletins** menu.

18.1 Bulletin Lists

There are several lists of bulletins within Carousel, all of them presented within the Carousel interface in a similar fashion. There are lists for Active, Active Repeating, and Alert bulletins. On top of that, there are sub-lists for every user of Carousel for each of those categories, plus a list for everyone's Saved and Stale bulletins. Finally, there is a list of bulletins that are waiting for approval. All of them present bulletins in the order that they will appear on the display, with special rules for alert and Active Repeating bulletins.

Let's review the meaning and purpose of each type of list:

Active : An Active bulletin is queued in the Carousel loop at the current time. It is either scheduled to be displayed *right now* or will be at some point in the future. Specifically, we say that a bulletin is *active* when it is a part of the pages that will display (once Carousel gets around to it). We might be more specific and specify a particular bulletin as *waiting for its on date and time* when the bulletin will be skipped over by the display engine because the current time and date do not line up with the bulletin's schedule, even though it will display at some point in the future.

Example: One bulletin is scheduled for all day, from today until next Wednesday. Another has no end date and is on from 3:00 PM to 5:00PM on weekdays. It's currently 2:00 PM on a Saturday. Even though the first bulletin is active now and the second will be active in 49 hours, they are both in the **Active Bulletins** list.

Active Repeating : Active Repeating bulletins bulletins follow the same scheduling rules as active bulletins, except that they are inserted *between* active bulletins. The frequency is determined by a value set when the bulletin was created. We covered this in section 13.6 on page 112.

Alert : When an alert bulletin is active (and not waiting for its on date and time), it temporarily removes any other bulletin that is scheduled on that zone, until its disabled.

Saved : Users may save bulletins that are already active, or add them to the saved list during the creation process.

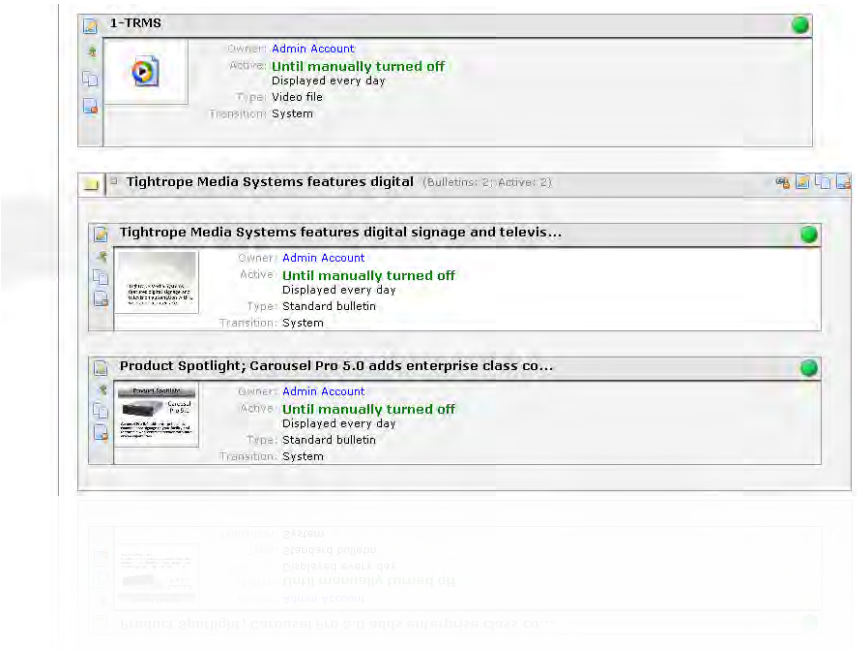
Stale : When a bulletin's schedule expires, it is automatically moved to this list. Bulletins in this list may be reactivated or deleted by using the **Housekeeping** menu, covered in section 18.4 on page 174.

Waiting : A user may be able to make a bulletin for a zone, but they are held for approval by Carousel. These bulletins will sit in this list until they are approved or deleted.

In versions prior to Carousel Release 5, crawls would be in the same list as bulletins. Now, they are separated because they are in separate zones.

Whenever you see a list of bulletins, you'll see something like that in figure 18.1.

FIGURE 18.1: A List of Bulletins



18.1.1 Bulletins

You can see three bulletins in figure 18.1. They each have control icons in a column along their left side, which we described in section 6.7 on page 58. Across the top of each bulletin you'll notice the title, which defaults to the text of the bulletin or the video/picture's name. In the right corner there is a status dot, which changes color depending on the status of the bulletin.

Active Bulletin : The green dot signifies that these bulletins are active because they are queued in the Carousel loop at the current time. They may not be displayed right this second, but will be once Carousel loops around to their position in the list.

Waiting Bulletin : The yellow dot signifies bulletins that are scheduled for some point in the future, but are not yet activated because their schedule doesn't fall within the current time and date.

Waiting for Approval : When a bulletin icon is gray, it has been submitted by a user that does not have automatically approved bulletins, then their bulletins are held in this status, even though they appear in the list that they were created for (Active, Active Repeating, etcetera).

Corrupt : Hopefully, you'll never see this red icon. If there is trouble with a bulletin, Carousel will keep it in the list with this status icon.

If you don't want to clutter up your list with pages that aren't currently active, then click the **Hide queued/waiting bulletins** icon from the top of the list.

Examine one of the bulletins in figure 18.1 on the preceding page. Within its frame, you will see a preview picture of the bulletin. For bulletins made within Carousel using a template or uploaded pictures, you'll see a preview of the actual bulletin. For other types, you'll see a stand-in icon. You can drag this preview into other positions within the list to move the bulletin, a topic covered in section 18.1.4 on the following page.

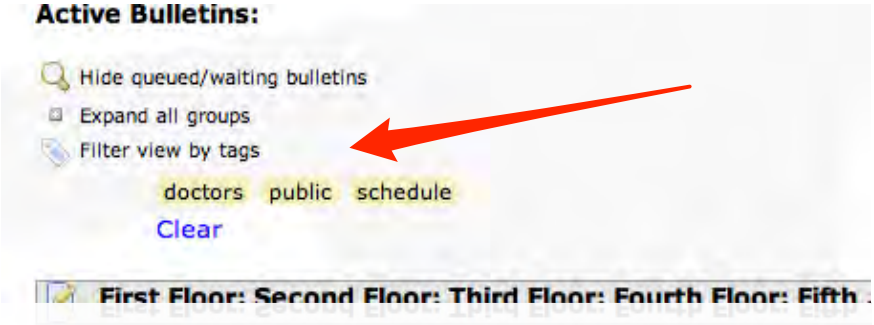
To the right of the preview, there is a summary of the bulletins properties, including the author, its schedule, the method used for making it and the transition setting. Active Repeating bulletins will have their frequency listed next to their type.

Example: Type: Standard bulletin, repeating every 4 bulletins.

18.1.2 Filtering By Tags

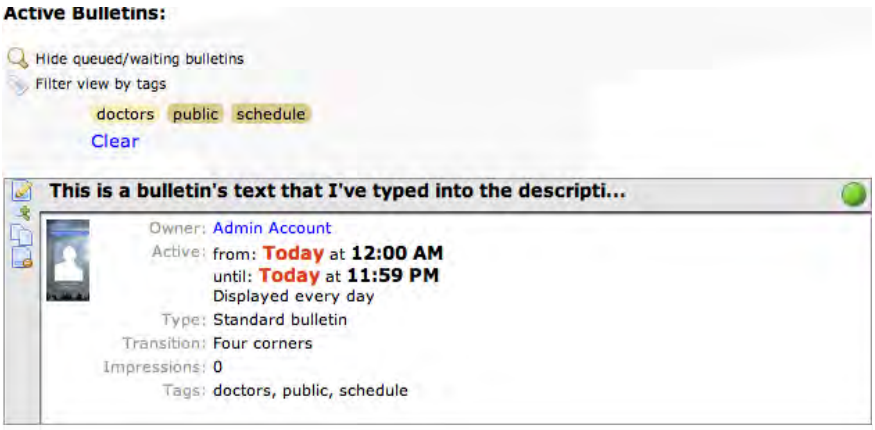
If you click on the **Filter view by tags** link at the top, shown in figure 18.2, the available tags for this zone will appear.

FIGURE 18.2: Filtering by tags



Click on any of the tags and you'll see bulletins that contain that tag. Click the **Clear** link to deselect all tags and see the full list again. To select more than one tag, like we do in figure 18.3, hold down the shift key when you select additional tags.

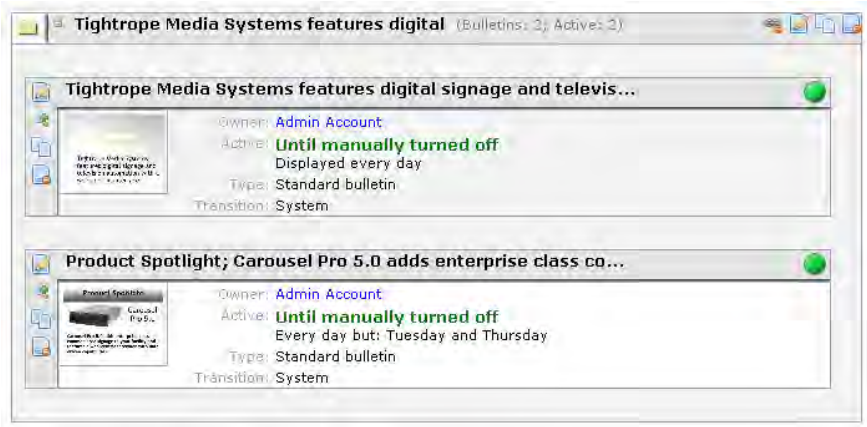
FIGURE 18.3: Select two tags by shift-clicking

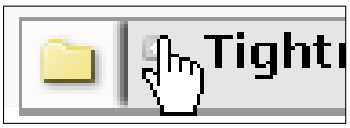


18.1.3 Groups

Bulletins that are grouped are contained in a group frame, shown in figure 18.4. A group has control icons on the upper right of its frame, which we covered in section 6.7 on page 58.

FIGURE 18.4: Bulletin Groups


Tightrope Media Systems features digital (Bulletins: 2; Active: 2)
Tightrope Media Systems features digital signage and televis...
Owner: Admin Account
Active: Until manually turned off
Displayed every day
Type: Standard bulletin
Transition: System
Product Spotlight; Carousel Pro 5.0 adds enterprise class co...
Owner: Admin Account
Active: Until manually turned off
Every day but: Tuesday and Thursday
Type: Standard bulletin
Transition: System



To save screen realestate, you can collapse a group by clicking on the small plus sign next to the group's folder icon .

To *really* save realestate, click the **Contract all groups** icon at the very top of the list.

Edit a group to change all of its bulletins' schedule.

You can use the **Ungroup This Group** icon to break the group apart. If you want to edit the group, you can click on the **Edit this Group** icon, which opens a form to change the groups name or to reset each bulletin's start and end date to a single setting. To move a group to another zone or to another list, click the **Copy/Transfer/Send** icon in the. Click the **Delete this group** icon to be forever rid of all of the bulletins within the group.

To delete bulletins enmasse, group them together (explained in section 18.1.4) and click the **Delete this Group** icon on the far right.

Carousel has no undo function for delete bulletins or groups. Be careful that you are not unintentionally throwing valuable bulletins away! Remember, you can always opt to transfer a bulletin to your stale or saved bulletins list, which allows you to recall them at a later date.

18.1.4 Moving Bulletins or Groups Within a List

You can move bulletins and groups to another location in the list by clicking on their preview picture or folder icon and then clicking between the gaps of two bulletins, illustrated in figure 18.5 on the facing page.

State Street Video
Owner: Admin Account
Active: Until manually turned off
Displayed every day
Type: Video file
Transition: System
URGENT MESSAGE; February 6th; Digital signage seminar will b...
Owner: Admin Account
Active: from: Tuesday, January 30, 2007 at 12:00 AM
until: Thursday, February 15, 2007 at 11:59 PM
Displayed every day
Type: Standard bulletin
Transition: System
Burnsville Holiday Inn: Digital Signage: Free seminar and we...

FIGURE 18.5: Moving a bulletin between two bulletins. You can also move a bulletin into another bulletin to create a group.

In Carousel, you can view a list of bulletins that belong only to you, which are located in the **My Bulletins** tab. In this view, you cannot move bulletins or groups between two bulletins. You *can*, however, group bulletins together from within this list. This limitation is due to the fact that you cannot see all of the bulletins that are within the list. This prevents bulletin placement ambiguity when reordering from this list.

To group one bulletin to another bulletin, or to another group, click in the bottom portion of a bulletin. Be sure to wait for the blue bar to appear, figure 18.5, as this tells you that you've hit your target.

When you group bulletins together from within a list, they retain their schedule. If you want them to have the same schedule, edit the new group by clicking the **Edit this Group** icon and following the directions.

If you want to be fancy, you can drag the the bulletin's preview to the spot that you want it to appear, as shown in figure 18.6. In some browsers, moving past the visible window in your browser is not a precise endeavor, requiring some finesse with the mouse to get it to scroll the page as you hit the edge of what is visible. Usually, it's easy to just click the preview and mouse over the desired target and then click, even though it's not as cool.

FIGURE 18.6: You can alternately drag your preview into its target location.

18.1.5 Copying and Moving Bulletins

You can make copies of bulletins and groups of bulletins by clicking on the **Copy Or Move This Bulletin** icon .

FIGURE 18.7: Move/Copy Bulletins Form

There are two groups of radio buttons: **Move this bulletin to** and **Copy this bulletin to**.

Three selections require further explanation:

Moving a Bulletin to Another User's Account

The last selection under the **Move this bulletin to** label has a pop-down list with all of the user accounts provides a way to move a bulletin to another user's account. This is handy when you want to create a bulletin for a user and then give them control over it as though they made it within their account. They can then edit the bulletin, save it or delete it. Also, when the bulletin goes stale it goes into their stale pages list.

Creating a Bulletin Package

Selecting the **A Bulletin Package** option under the **Copy this bulletin to** label will instruct Carousel to create a bulletin package that you may download.

A bulletin package is a zip file with the bulletins that you've selected in side. To create a bulletin package with more than one bulletin, you must first group the bulletins within the bulletin list, an process covered in section 18.1.3 on page 170.

You can import bulletins within the **Media: Channel: Bulletin Package** menu, covered in section 19.10 on page 203.

Zone Template

Copying a bulletin to a zone template will create a new template with the characteristics of the current bulletin. If the selected bulletin is dynamic, this option will be named "`Zone Defalt Template`". This will cause all future dynamic bulletins of that type to display like the original bulletin.

18.2 My Bulletins

All users can see the **My Bulletins** tab in the **Manage Bulletins** menu. Any user can edit their bulletins and see the bulletins that Carousel has expired and placed in the **Stale Bulletins** list. Over time, a user might stash bulletins for reuse in the **Saved Bulletins** list. Saved or stale bulletins can be edited and rescheduled.

! → When you reschedule a stale or saved bulletin, Carousel will automatically activate it if the new schedule is set to display. If you move a stale or saved bulletin to the Active bulletins list, Carousel will automatically ask you to reschedule it.

18.2.1 My Bulletins as the Administrator

As the administrator, you may access all bulletins regardless of the list they are in or the user that created them. You can view their stale and saved bulletins, edit them, or re-activate them.

Remember, you can use the **Copy/Send/Transfer** to move a bulletin to another user's list. If you want to move a stale bulletin into a user's saved list, then you must first move it to the *current* user's saved list and then transfer it. We cover copying and moving bulletins in section 18.1.5 on page 171.

18.3 Approving Bulletins

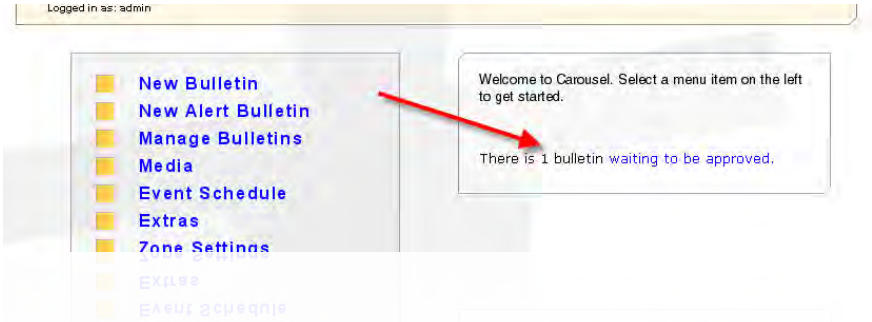


FIGURE 18.8: A Bulletin is Waiting for Approval

When a user without permission to auto-authorize, makes a bulletin, it will be held for approval before it is added to Carousel's Active Bulletins list. Whether or not a bulletin has to be approved is determined for each user and is configurable for each zone for which they have bulletin creation permission. See *FrontDoor: The Manual* to learn about how to set these permissions.

To find the list of waiting bulletins, go to the **Waiting Bulletins** tab within the **Manage Bulletins** menu.

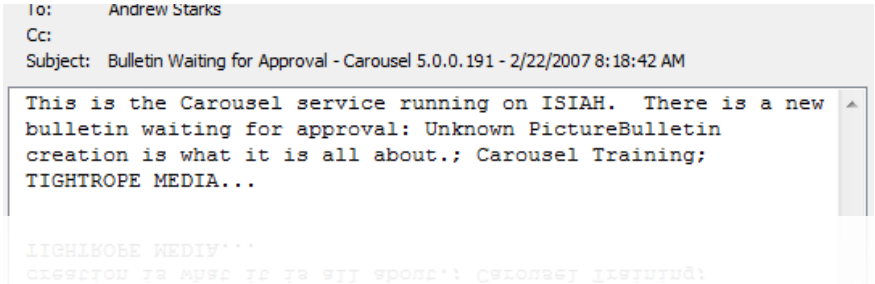
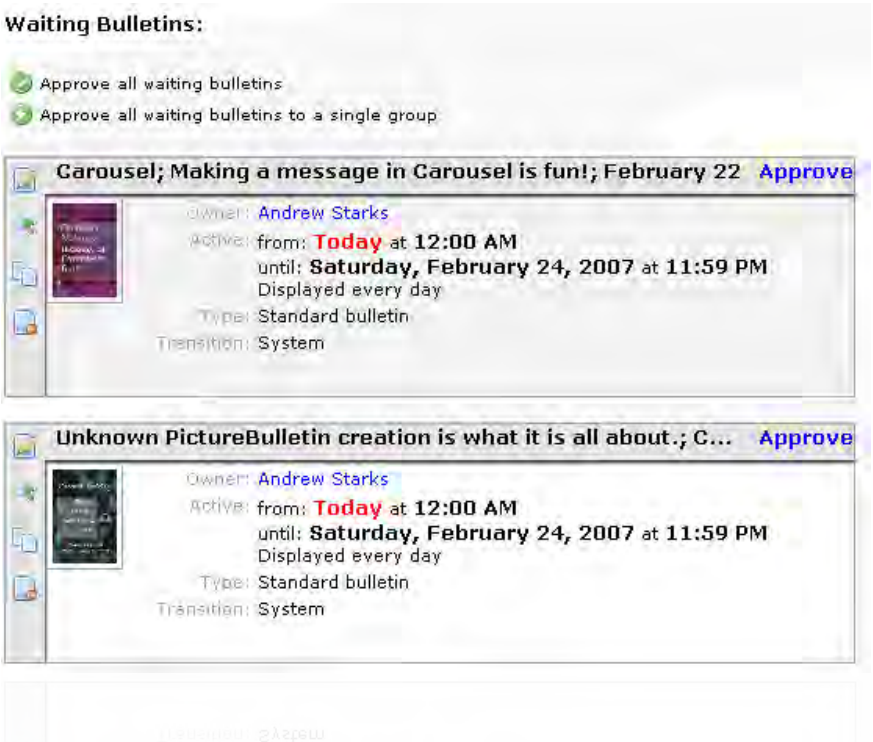

To: Andrew Starks
Cc:
Subject: Bulletin Waiting for Approval - Carousel 5.0.0.191 - 2/22/2007 8:18:42 AM
This is the Carousel service running on ISIAH. There is a new bulletin waiting for approval: Unknown PictureBulletin creation is what it is all about.; Carousel Training; TIGHTROPE MEDIA...

FIGURE 18.9: A bulletin is waiting for approval.

When a new bulletin arrives from one of these users, Carousel is able to send an email to designated people, a process we demonstrated in section 10.1.1 on page 91.

Typically, these addresses would include people charged with the duty approving bulletins, but they could be any valid email address. An example email is shown in figure 18.9 on the previous page.

FIGURE 18.10: The Waiting Bulletins List

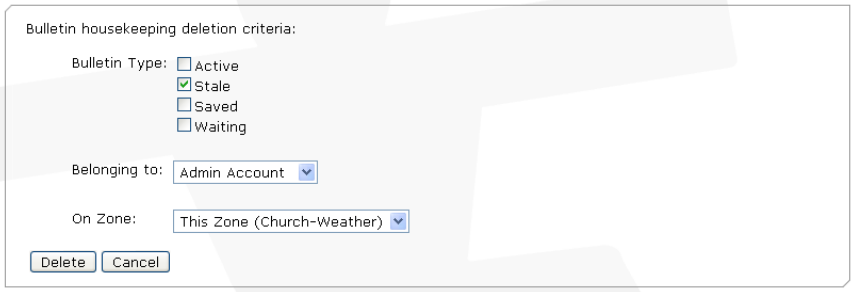

Waiting Bulletins:
Approve all waiting bulletins
Approve all waiting bulletins to a single group
Carousel; Making a message in Carousel is fun!; February 22
Approve
Owner: Andrew Starks
Active: from: Today at 12:00 AM
until: Saturday, February 24, 2007 at 11:59 PM
Displayed every day
Type: Standard bulletin
Transition: System
Unknown PictureBulletin creation is what it is all about.; C...
Approve
Owner: Andrew Starks
Active: from: Today at 12:00 AM
until: Saturday, February 24, 2007 at 11:59 PM
Displayed every day
Type: Standard bulletin
Transition: System

The Waiting Bulletins list has some unique buttons that aid in the process of approving bulletins. The **Approve all waiting bulletins** icon does just what it says. The **Approve all waiting bulletins to a single group** icon does the same thing, except that all of the new bulletins will be grouped together, making it easier for you to find them later.

Each bulletin may be individually approved by clicking on the **Approve** link to the right of the bulletin's title.

18.4 Housekeeping

FIGURE 18.11: The Housekeeping Menu



The **Housekeeping** tab, figure 18.11, allows you to delete bulletins en mass based on a specific set of criteria. Bulletins may be deleted by type (Active, Stale, Saved,

or Waiting), by User or All Users, and for All Zones or the Zone that you are operating from. Once the criteria has been selected and you click on the Delete button, a summary page will display allowing you a preview of the bulletins marked for deletion. If the list is correct click on the Delete button on the summary page for permanent deletion.

18.5 Reporting

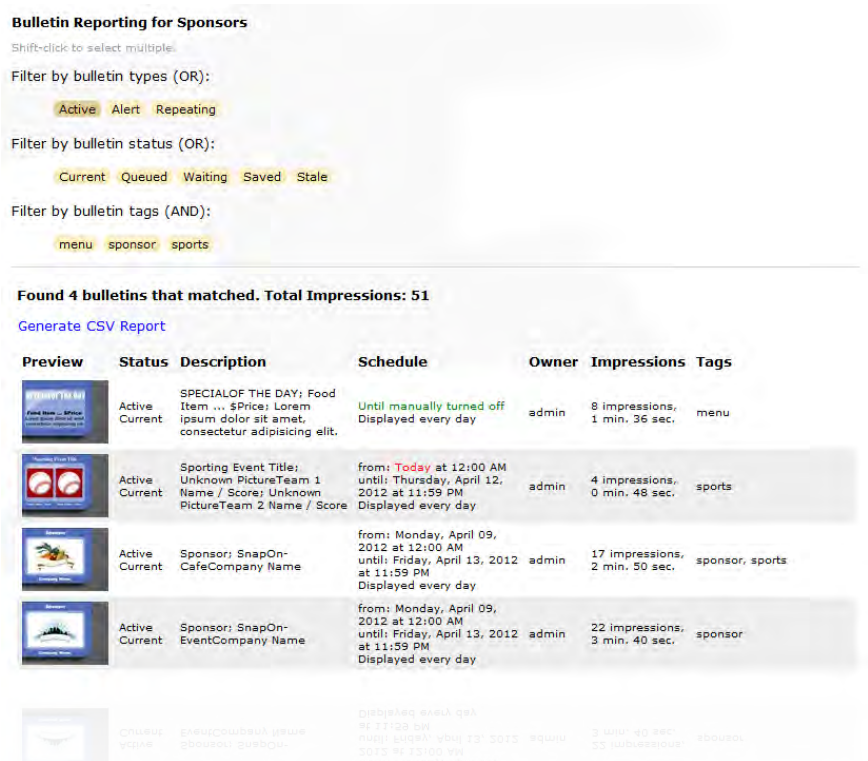

Bulletin Reporting for Sponsors
Shift-click to select multiple.
Filter by bulletin types (OR):
Active Alert Repeating
Filter by bulletin status (OR):
Current Queued Waiting Saved Stale
Filter by bulletin tags (AND):
menu sponsor sports
Found 4 bulletins that matched. Total Impressions: 51
Generate CSV Report
Preview Status Description Schedule Owner Impressions Tags
Active Current
SPECIALOF THE DAY; Food Item ... $Price; Lorem ipsum dolor sit amet, consectetur adipisicing elit.
Until manually turned off
Displayed every day
admin
8 impressions, 1 min. 36 sec.
menu
Active Current
Sporting Event Title; Unknown PictureTeam 1 Name / Score; Unknown PictureTeam 2 Name / Score
from: Today at 12:00 AM
until: Thursday, April 12, 2012 at 11:59 PM
Displayed every day
admin
4 impressions, 0 min. 48 sec.
sports
Active Current
Sponsor; SnapOn-CafeCompany Name
from: Monday, April 09, 2012 at 12:00 AM
until: Friday, April 13, 2012 at 11:59 PM
Displayed every day
admin
17 impressions, 2 min. 50 sec.
sponsor, sports
Active Current
Sponsor; SnapOn-EventCompany Name
from: Monday, April 09, 2012 at 12:00 AM
until: Friday, April 13, 2012 at 11:59 PM
Displayed every day
admin
22 impressions, 3 min. 40 sec.
sponsor

FIGURE 18.12: Bulletin Reporting

The **Reporting** tab, figure 18.12, allows you to select a list of all bulletins on a zone based on the bulletin type, status, and tags. You can then export a CSV report of the bulletins, which includes all of the metadata about the bulletins, including impression tracking information.

Initially, all Active and Current bulletins on the zone are shown in the list. To select which bulletins are included in the report, you can adjust the bulletin filters as needed.

18.5.1 Filter by bulletin type

The bulletin type filter allows you to select between Active, Alert, or Repeating bulletins, or any combination of the three. Click on a type to select it, and shift-click to select multiple types.

For example, selecting **Alert** will limit the report to just Alert bulletins, and selecting **Active** and **Repeating** will include both Active and Repeating bulletins in the report.

18.5.2 Filter by bulletin status

The bulletin status filter allows you to select between Current, Queued, Waiting, Saved, or Stale bulletins, or any combination thereof. Click on a status to select it, and shift-click to select multiple statuses.

For example, selecting **Queued** will limit the report to just Queued bulletins, and selecting **Current** and **Stale** will include both Current and Stale bulletins in the report.

18.5.3 Filter by bulletin tags

If you have tags defined on any bulletin in the zone (see section 13.4.6 on page 110, *Bulletin Tags*), you'll see a filter for bulletin tags. The filter will not appear if there are no tagged bulletins in the zone.

Selecting a tag will limit the report to only include bulletins with that tag. You can shift-click multiple tags to add additional tags to the filter. In contrast to the type and status filters, selecting multiple tags will limit the report to bulletins tagged with *all* of the selected tags.

For example, in figure 18.12 on the previous page, if you were to select both the **sponsor** and **sports** tag, the report would only include the third bulletin, as it is the only one with *both* sponsor and sports tags.

18.5.4 Export CVS Report

Once you have filtered the bulletin report, you can click the **Generate CVS Report** link to download a CVS file containing metadata about each bulletin in the report.

The CSV report contains the following fields for each bulletin:

PageID : The ID (guid) of this bulletin.

Type : Bulletin type (Active, Alert, Repeating).

Status : Bulletin status (Current, Queued, Waiting, Saved, Stale).

Description : The bulletin's description.

ObjectType : The object type of this bulletin.

DateTimeOn : When the bulletin becomes active.

DateTimeOff : When the bulletin becomes inactive (stale).

CycleTimeOn : What time of day should the bulletin start while it is active.

CycleTimeOff : What time of day should the bulletin stop while it is active.

ManualDuration : If true, the bulletin is always active, ignoring DateTime/CycleTime settings.

DwellTime : How many seconds the bulletin should be on screen. If set to -1, the system will choose the dwell time based on number of words in the bulletin. If set to 0, dwell time cannot be calculated for this bulletin type.

Days : Description of which days of the week the bulletin is scheduled for.

Owner : User account that owns the bulletin.

ImpressionCount : Number of times the bulletin has been shown on any Display Engine.

ImpressionSeconds : Estimate of number of seconds the bulletin has been on screen. Calculated by multiplying ImpressionCount by DwellTime.

RepeatInterval : For Repeating bulletins, the number of bulletins to wait before repeating this bulletin.

SoundEnabled : True if sound is enabled for this bulletin, false otherwise.

WebEnabled : True if this bulletin can be shown on the public web interface, false otherwise.

WordCount : Number of words found in the bulletin.

PreviewURL : URL to a preview image of this bulletin.

Tags : A comma delimited list of tags set on this bulletin.

18.6 Slide Show

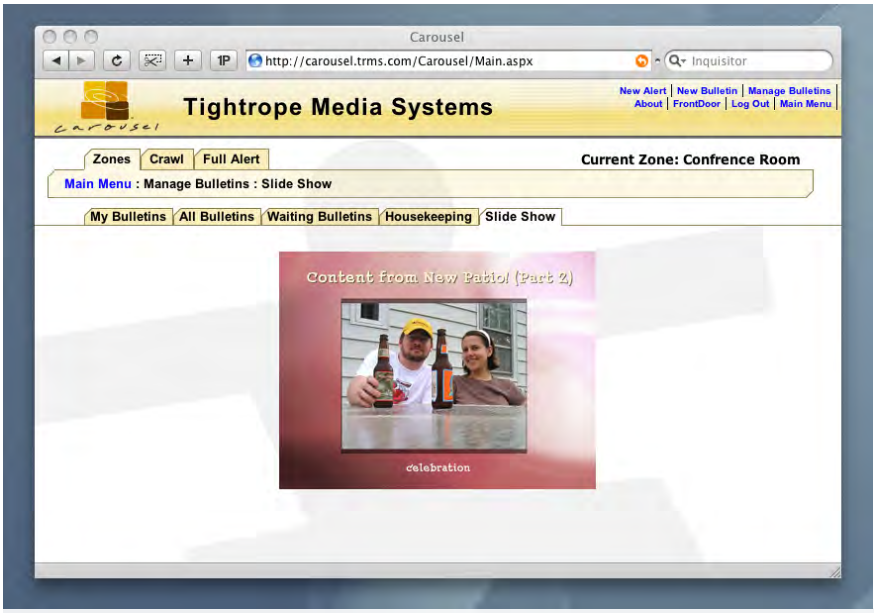


FIGURE 18.13: The Slide Show

Carousel includes a little slide show utility under the **Slide Show** tab. The slide show gives you a small preview of what this zone's output will look like.

This slide show utility can only display certain bulletin types, due to bandwidth concerns. You will not be able to preview Video, Flash, or Powerpoint bulletins.

The slide show preview only shows you the bulletins on any one zone. To preview an *entire* channel, use Carousel's channel preview feature, covered in section 7.4 on page 69, *Previewing Your Channel*. Carousel also features an HTML and RSS output for each zone. We cover activating this feature in chapter 20 on page 205, *Extras*.

19 Managing Media

In this chapter, we will explore the menu items and features found within the **Media** menu, which you access from Carousel's **Main Menu**.

In Carousel, *media*, or *media assets*, means anything that gets added to a template, a process that we cover in section 19.7 on page 186, *The Template Editor*. Media assets include:

Backgrounds : Every bulletin has a background. You can add backgrounds to zones and use them in bulletins. You may also upload a background that is automatically split into several backgrounds for all of the zones on a channel, which creates a single seamless background on that channel. We show how to upload seamless backgrounds in section 19.9 on page 201, *Creating a Seamless Background for a Multi-Zoned Channel*.

Pictures : Pictures are graphic files that are placed on top of the background.

Video Clips : Like pictures, these videos are placed on top of a background within a template.

Sounds : Sound files within this menu are exclusively for bulletins made from a template. They are not included in the **Background Audio** list, a topic covered in section 7.2 on page 59, *Create Your Zones*.

Templates : Templates are where everything else comes together to create a bulletin. The above media elements are gathered and arranged into blocks next to text that is entered by the bulletin's author.

Media Tags : Tagging media helps people sort and organize. As the number of files that you manage grows, you will appreciate the time spent adding these keywords to your files. We cover the application of these tags in section 19.8 on page 201.

Add media package : Exclusive to the zone view (section 19.1 on the following page), this option allows you to import media from a *zip* file.

In addition, you can even import bulletins from another Carousel system. This is handy for sharing between two Carousel Solos or when upgrading from an older system.

When you sum the items in this list, you get the bulk of the resources for creating bulletins within Carousel. Everything within your **Media** menu, with the exception of importing bulletins from other Carousel systems, is the exclusive domain of bulletins created using templates.

All media, regardless of its type, is managed the same way within Carousel. We will cover the deleting, copying, tagging and editing of all media assets in this chapter.

19.1 My and Zone Tabs

Carousel makes a distinction between media files available to everyone that creates a bulletin within the zone and those assets that belong only to your account. You will find two tabs that separate these categories: **My** and **Zone**.

FIGURE 19.1: The My and Zone Tabs: Put media assets in the **My** tab when you want to hide it from other users.

If you upload a media asset during the process of creating a bulletin, it is added to the **My** tab. You may copy these bulletins to other zones while creating the message, but only within the **My** tab, thus making the addition unavailable to other users of Carousel.

Within the **Media** menu, however, you are free to copy a media asset anywhere you wish. You can make another copy on the current zone, add it to other zones under either the **Zone** or **My** tabs. We cover this in section 19.5.3 on page 184, *Copying Media Assets*.

It is important to note that the list of bulletins available within your private list is unique for each zone. If you have a background tucked away in your **My Backgrounds** stash, it will not be available to you when you go to another zone. Again, this is where copying media comes into play and we cover that in section 19.5.3.

19.2 File Formats

For backgrounds and pictures, Carousel supports:

- Portable Network Graphics (PNG)
- JPEG
- BMP

For sound files:

- WAV
- MP3
- Unprotected WMV

Finally, Carousel supports the following video formats:

- MPEG-1/2/4
- AVI (any properly configured codec, including Microsoft DV)
- QuickTime (any properly configured codec, including QuickTime DV and H.264)
- Windows Media 9

19.2.1 File Compatibility

Carousel does a nice job of detecting invalid picture and background files. However, there is no verification for video and audio files. Be sure that you are using standard formats with codecs that are installed an all of your players.

We cover more details on specific hardware capabilities, including high definition playback, in section 4.3 on page 36, *Video File Playback Performance and Resolutions*.

19.3 Logos and Irregularly Shaped Pictures

The PNG format is especially useful for logos or any irregularly shaped picture, as Carousel can "cut a hole" for the image using its *alpha channel*.

An alpha channel is a gray scale image with the same dimensions as the visible picture. Where the alpha image is white, the picture will show. Where it is black, the background will show through. Grey areas will blend the picture, as you can see in figure 19.2.

FIGURE 19.2: Alpha Channel Example: The first version is the picture without an alpha channel. The second is the alpha channel while the third is the result of applying it to the picture.

19.4 Aspect Ratios

Note that when you upload videos and backgrounds into Carousel, the system will stretch them to fill the block or zone that you are using. That is, a background will be stretched to fill a zone and the video will stretch to fill the hole carved out for it in the template. It is best to design the background or video with its Carousel target in mind.

Pictures are not affected by aspect ratios. They are shown pixel-for-pixel and evenly resized if needed, retaining the original look of the picture.

When you upload a picture into Carousel, it does not resize it, like it does for a background. Therefore, take care not to upload a huge image file when a medium or small one would do. Carousel will resize just about any image, but you could be needlessly taxing the system.

19.5 Media Asset Lists

Media

Whenever you click on any of the *Media* menu's items, except **Media Tags** and **Add Media Package**, you will be greeted with a list of items that are in that zone.

FIGURE 19.3: A List of Backgrounds

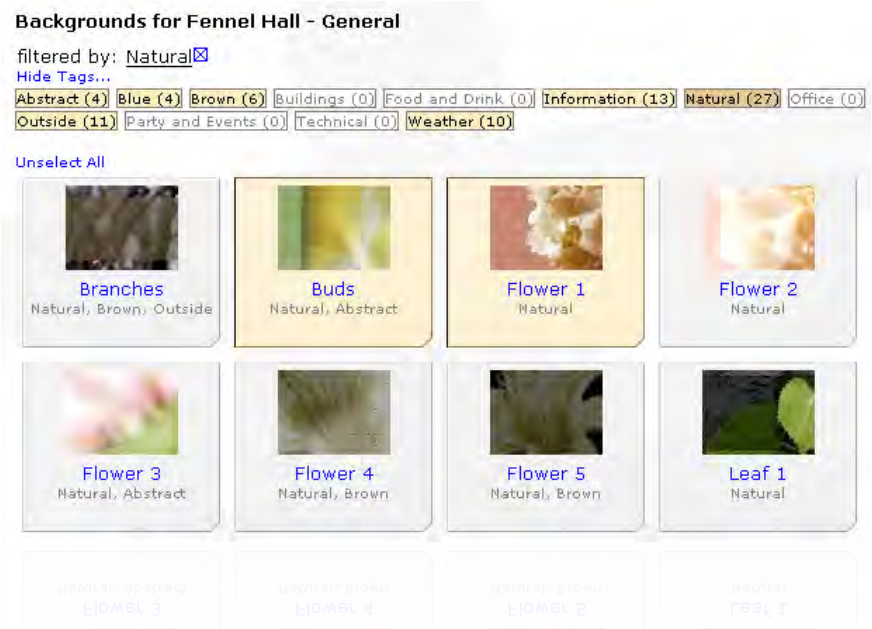


Figure 19.3 is a view of the top of a background list populated with some of the default backgrounds included with Carousel. Let's examine some if the features.

First, notice that in our example, we have filtered the backgrounds by the "`Natural`" tag, which means that only backgrounds with that tag can be seen. We can erase this by clicking on the blue remove icon ⊠.

Clicking an items link edits the properties.

Next, notice that "`Buds`" and "`Flower`" have been selected. We can select any combination of items by clicking on them. Take note, if you click on the item's hyperlink, the item's properties form will appear. We cover editing a media asset's properties in section 19.6 on page 185, *Media Asset Properties*.

If you would like to un-select items you've clicked on, click the **Unselect All** link at the top of the list. If nothing is selected, you'll notice the link says **Select All** instead.

19.5.1 Items

Examine the item in figure 19.4 on the facing page. Notice that the name of the item is a link. As we mentioned in section 19.5 on the previous page, clicking on it brings up the items properties (section 19.6 on page 185). If we click on the item, it selects it.

Below the item's name is a list of the tags that are attached to this item.

19.5.2 Form Buttons

At the bottom of the media asset list will be a collection of buttons. Let's examine each:

Add Tag : After selecting one or more items, you can add tags to them with this button. If you already have media tags in your system, matching tags will appear in a box below the **Add Tag** field (figure 19.6 on page 184). If your entry doesn't match any existing tag, a new one will be created.

FIGURE 19.4: An Item in a Media Asset List

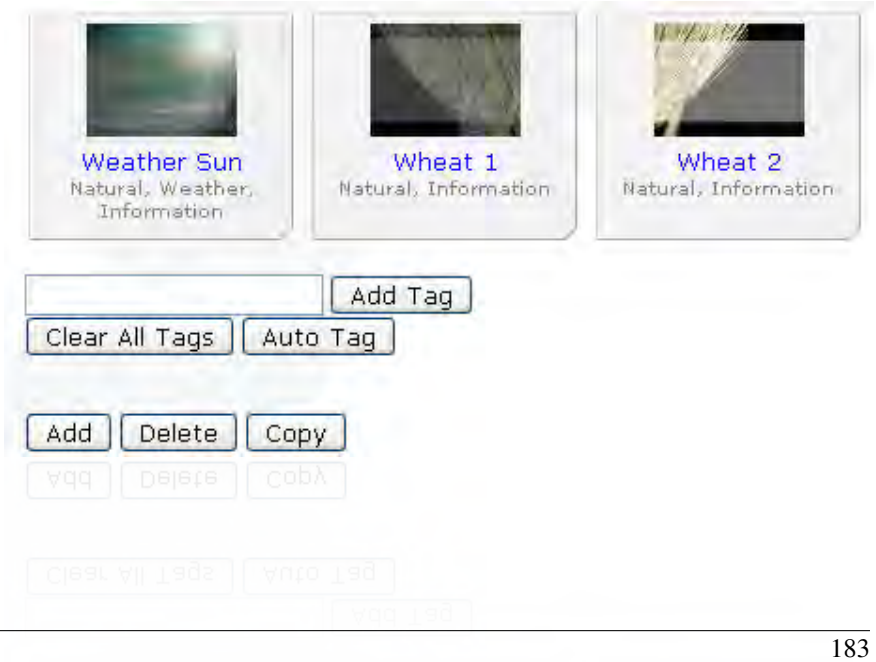
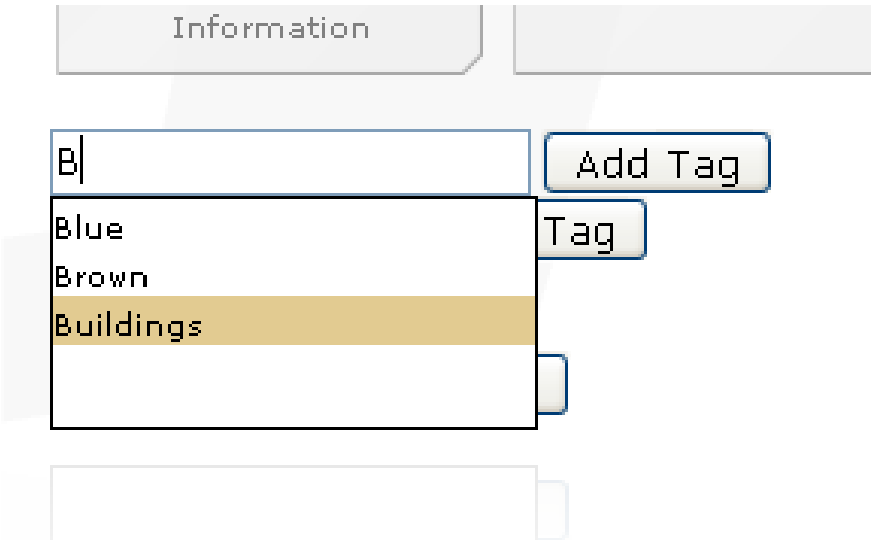


FIGURE 19.5: The Buttons at the Bottom of a Media Asset List

FIGURE 19.6: Adding a Tag



Clear All Tags : This button clears the tags off of any selected items. This button is not available for templates as they do not have tags.

Auto Tag : Carousel will look at the name of each selected item and tag create a tag for each word. This works well when you name the files for this purpose. Obviously, using this feature on a file named "`A Pretty Flower In The Woods`" will have poor results. This button is not available for templates.

Add : Brings up a form that allows you to upload a new item.

Delete : Deletes the selected items. If you delete an asset that has been copied to other zones, you will be asked if you would like to delete it from there as well. Carousel keeps track of assets that are copied so that you can later delete them in one step.

Copy : Brings up the **Copy** form, where you select the targets for copying the selected items. We detail this in section 19.5.3, *Copying Media Assets*.

Export : This appears only for templates. Clicking it will turn the selected templates into a media package, which you can download and import into another Carousel system.

19.5.3 Copying Media Assets

To copy one or more assets, click on them and then click the **Copy** button at the bottom of the list. You will see the form pictured in figure 19.7 on the next page.

By default, Carousel selects the current zone in the current mode (**My** or **Zone**). This will create a duplicate of the asset.

If you check a box for another zone, Carousel creates a duplicate that is linked to the original. That way, when if you delete one of the copies, Carousel knows to ask you if you want to delete all of them, or just the version in the current zone.

FIGURE 19.7: Copying a Media Asset

19.6 Media Asset Properties

When you click on a media asset's hyperlinked name, shown in figure 19.4 on page 183, the properties form will appear for that item.

Backgrounds and pictures will have all of the controls that you see in figure 19.8 on the next page. Video clips and sounds will be missing the image control features listed at the bottom. If you are editing a template, then you are in the wrong section. Skip ahead to section 19.7 on the following page, *The Template Editor*.

The **Name** and **Preview** sections have obvious purposes. The **Tags** multi-select list provides another method to select tags for this asset. If you'd like to add a new tag, type the new tag into the field below the list and click the **Add** button.

Use the **Effect** options to alter the appearance of an image when editing pictures or backgrounds.

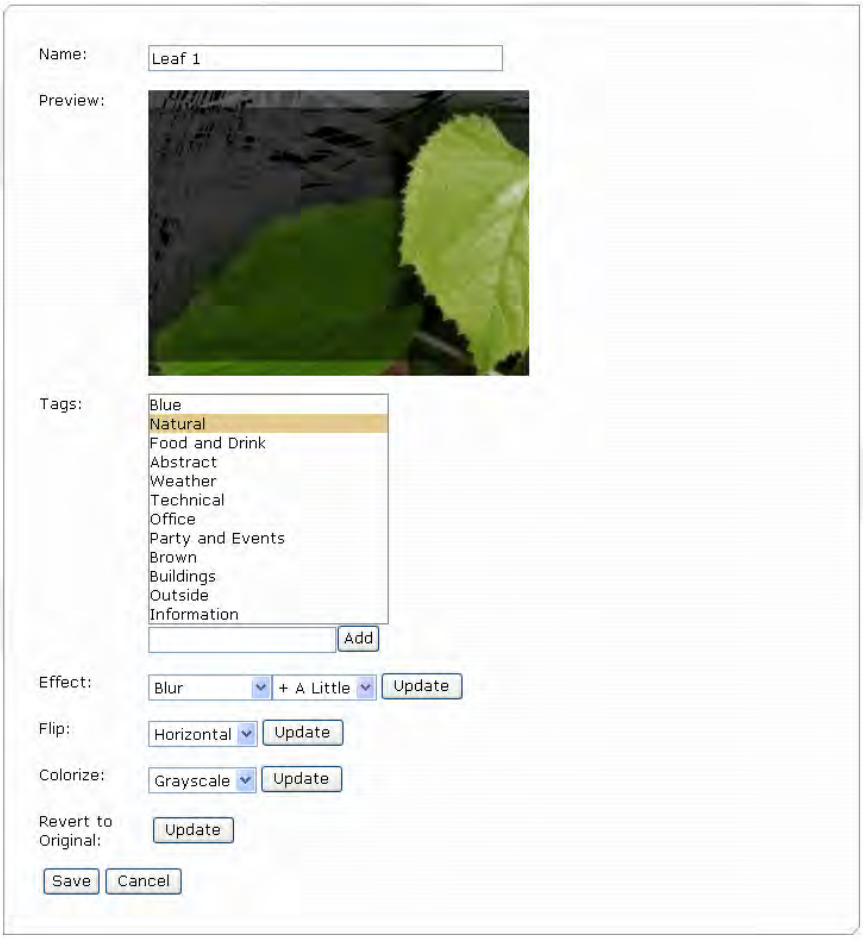
Just choose the effect from any of the pop-down lists and click the **Update** button to the right.

The **Effect** pop-down list has a secondary pop-down that includes options like **+A Little** and **-A Lot**. This refers to the strength of the effect. For **Brightness** and **Contrast**, the negative values will apply each effect in negative directions. They have no effect on other choices.

The **Update** button labeled **Revert to Original** resets the picture or background to the original version that was first uploaded. The image will return to its original state regardless of the amount of time that has passed since you made the alterations.

If you copied this asset to another zone and edit this version, it will *not* change on the other zone. The two will still be linked, however, and deleting one will prompt Carousel to ask you if you want to delete the other.

FIGURE 19.8: The Properties Form of A Media Asset



19.7 The Template Editor

When you create a bulletin, you can upload it in its entirety and display it on Carousel's Display Engine as a picture or video that has the message already baked in. It's more common to type some text and add some pictures directly within Carousel. The placement of the pictures and text and the style of each are predefined by something called a *template*. Templates are a starting point for a bulletin that combines media into one message. To create and edit these templates, we use Carousel's *Template Editor*.

Media: Templates

The Template Editor provides an interface to select a background and place message elements on the screen. Once the template is created from Carousel's *Media: Templates* menu, you may access it when you create a standard bulletin. The Template Editor is also used when creating certain dynamic bulletins and when changing the look of a bulletin that is being created.

19.7.1 Editing a Bulletin's Template vs. Permanently Editing a Template

When you create a bulletin, you can edit the template using the Quick Edit palette, covered in section 13.2 on page 104, *Editing and Creating Bulletins*. You can also

Individual's Name
Individual's Occupation
Individual's e-mail / phone number
Use this area to display the individual's credentials, available hours, or additional contact information.

FIGURE 19.9: In this bulletin, the red arrows point to elements placed with the template editor.

edit the message using the Template Editor by clicking on the **Edit Template** icon .

! → When you edit templates during the process of creating a message, *you are only editing the template for that bulletin*. When you edit the template from the *Media: Template* menu, you are permanently changing the template. Those changes will be applied to all *future* bulletins that use that template. Existing bulletins will remain unchanged.

19.7.2 Basics of the Template Editor

Like most things Carousel, a template originates from a zone. Therefore, a template shares the dimensions of the zone it was created from and all of the pretty things that make that template up are placed within these dimensions.

If you copy a template to another zone, Carousel will stretch it to fit that zone, if it doesn't have the same dimensions of the original.

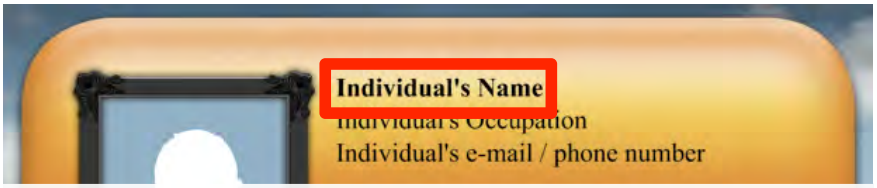
Blocks: Elements of a Template

Let's go over all of the things that are in a template.

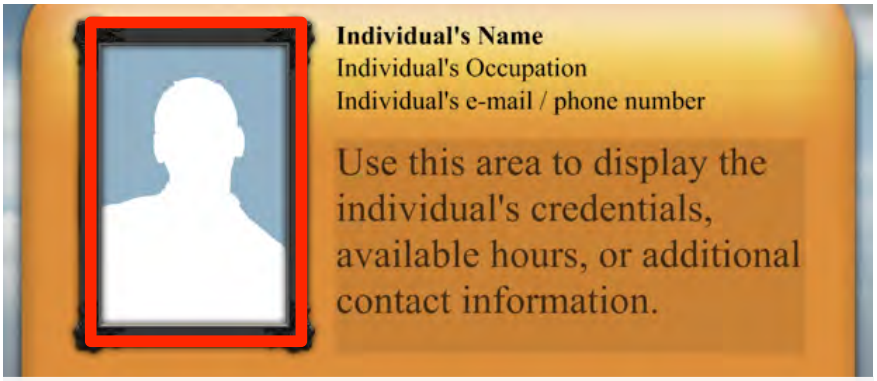
First, every template has a background, which is in back of everything that you see in your bulletin. You can change that background when you are making a message, but the background that is associated with the template is the first choice that the user will see.

In addition to a background, templates contain *blocks*, which are elements of the message that may be placed on the template. Templates may have any combination of the following blocks:

Text : Each text box has font, color, size and placement properties. Carousel will automatically wrap text as needed, provided that the area given to the text box is large enough to support additional lines of text.



Picture : A picture contains a single graphic element, usually a *PNG* or *JPEG* file. Carousel will automatically resize the image so that it fills the provided area either horizontally or vertically. Carousel can maintain the picture's aspect ratio, which means that it may not fill the entire area, if that area does not share the picture's aspect ratio. This is an option that you can set.


Individual's Name
Individual's Occupation
Individual's e-mail / phone number
Use this area to display the individual's credentials, available hours, or additional contact information.

Web Picture : A web picture is just like a picture, except that instead of loading an image into Carousel, you give it the web address of a picture. This is often used to display dynamic weather maps or traffic cameras.

Video : Carousel can place a video clip into a block. Unlike a picture block, Carousel will stretch the video to fill the rectangle, regardless of the video's original aspect ratio.

Simple Rectangle : Every element can have a backdrop and outline defined for its area. You may find the need to define a rectangle that is outside of any given element's dimensions. In those cases, you can use a rectangle block.

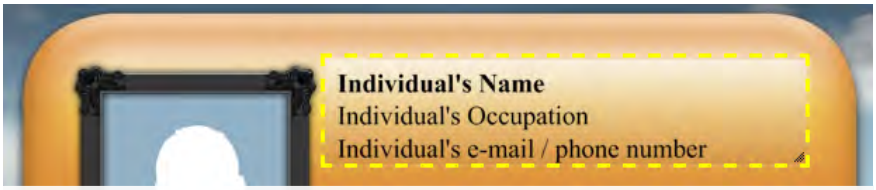


FIGURE 19.10: The yellow outline is around a *simple rectangle* block. In this case, the box is surrounding multiple text fields.

Simple Ellipse : You can add circles and ellipses to your template with this block type.

19.7.3 Walking Through the Template Editor Form

As of Carousel Release 6, there is a new template editor! Yay! If you are using a more modern web browser, such as Safari, Chrome, FireFox or Internet Explorer

Version 7 or greater, you can rejoice in the drag and drop goodness of this feature! If not, you'll have to use the older template editor, which we cover in appendix E on page 255, *Limited Template Editor*.

Let's make a brand new template together! We'll walk through creating a text block on your template. By doing this, we'll be able to see the vast majority of the features of the template editor. What we don't cover, we will pick up at the end.

Making a Text Block in a Template

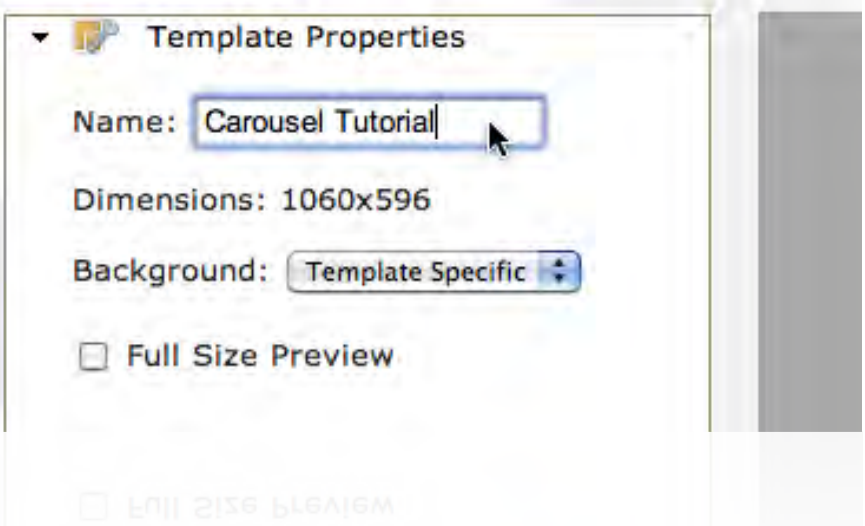
Media: Zone (Tab): Templates

Step 1: In a Carousel system that has a channel and zones already created within it, navigate to *Media: Zone (Tab): Templates*.

Step 2: At the bottom of the list of templates available for the current zone, you'll see an **Add** button. Click it. This will bring up the **Edit** form for a new template, which is illustrated in figure 19.11.

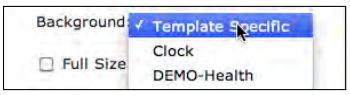
FIGURE 19.11: Making a New Template

Step 3: In the **Template Properties** section, name your new template, as "`New Template`" is a terrible name for your creation!



Step 4: Next, you select the default background for this template in the **Background** pop-down list. A user may change this at creation time, but they will see this selection first. If you want a background in your template that you don't already have available in your zone, you'll need to upload it first. To do that, you'll have to skip over to *Media: Backgrounds: Zone (tab)* and we cover adding it in section 19.5 on page 181, *Media Asset Lists*.

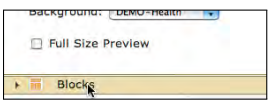
Media: Backgrounds: Zone (tab)



If you want to leave it blank for now, you can choose the "`Template Specific`" option.

We'll skip over the **Select Block** and **Block Name** fields for now. Before we can use these fields, we need to add a block.

Step 5: Once you change your background, you'll see it update in the preview window on the left. If you want, you can instruct Carousel to make the preview window match the size of your zone by clicking the **Full Size Preview** checkbox. As you edit this template, you can check/uncheck this option as needed.

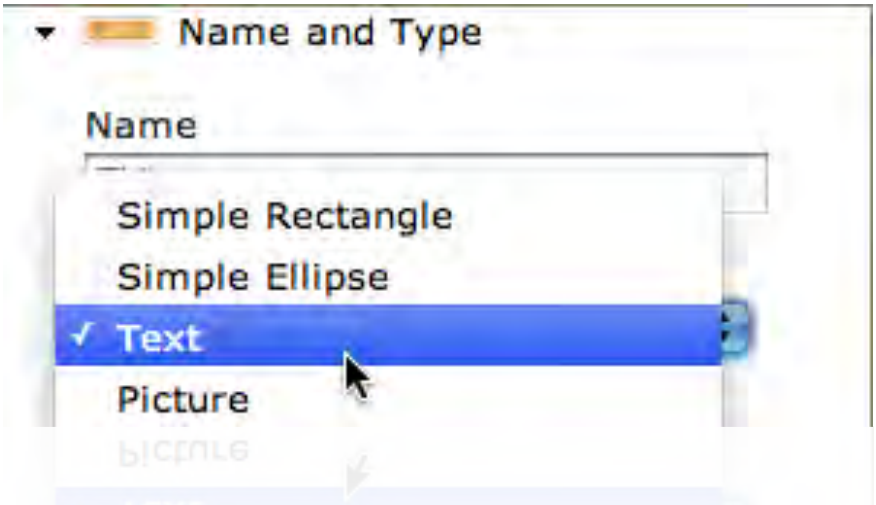


Step 6: Next, click the **Blocks** option, which will expand the options for creating a block.

Step 7: Click the **New** button to create a brand new block.

Step 8: You'll notice that a whole bunch of menu options just appeared! That's because a block has a bunch of options and you're currently editing the new block you just

created. Also, Carousel has helpfully suggested that you name your block and give it one of the types we enumerated back in section 19.7.2 on page 187.



Pick a name that is helpful to the person using your template:

Example: "`Title`" or "`Address`" or "`Body of Message`".

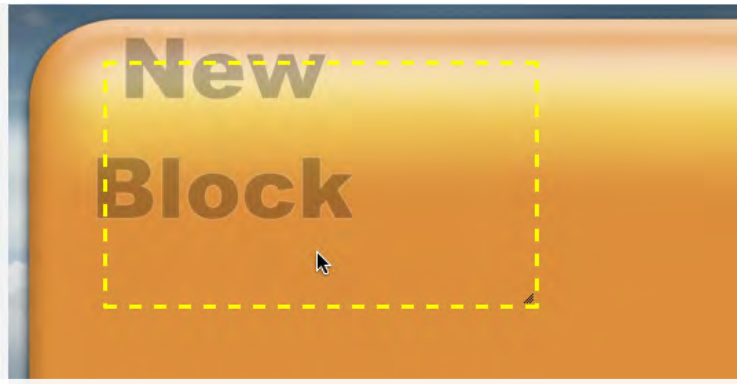
For this walkthrough, make sure that you set the **Type** pop-down list to "`Text`".

Step 9: Next, let's move and resize our creation. There are three ways to do this. First, by dragging and dropping the block in the preview window:

Substep A: In the preview window, click on your block and drag it. Make sure that you click and drag somewhere within the block, but not near the edges, as shown in figure 19.12.

This is a good time to click the **Full Size Preview** checkbox in the **Template Properties** section.

FIGURE 19.12: Dragging a block



Substep B: To resize a block, just drag one of the yellow dotted corners on the right or the bottom-right corner, as in figure 19.13 on the next page.

If you need to get pixel accurate, you can do this two ways. One way is to click on the **Size and Position** section.

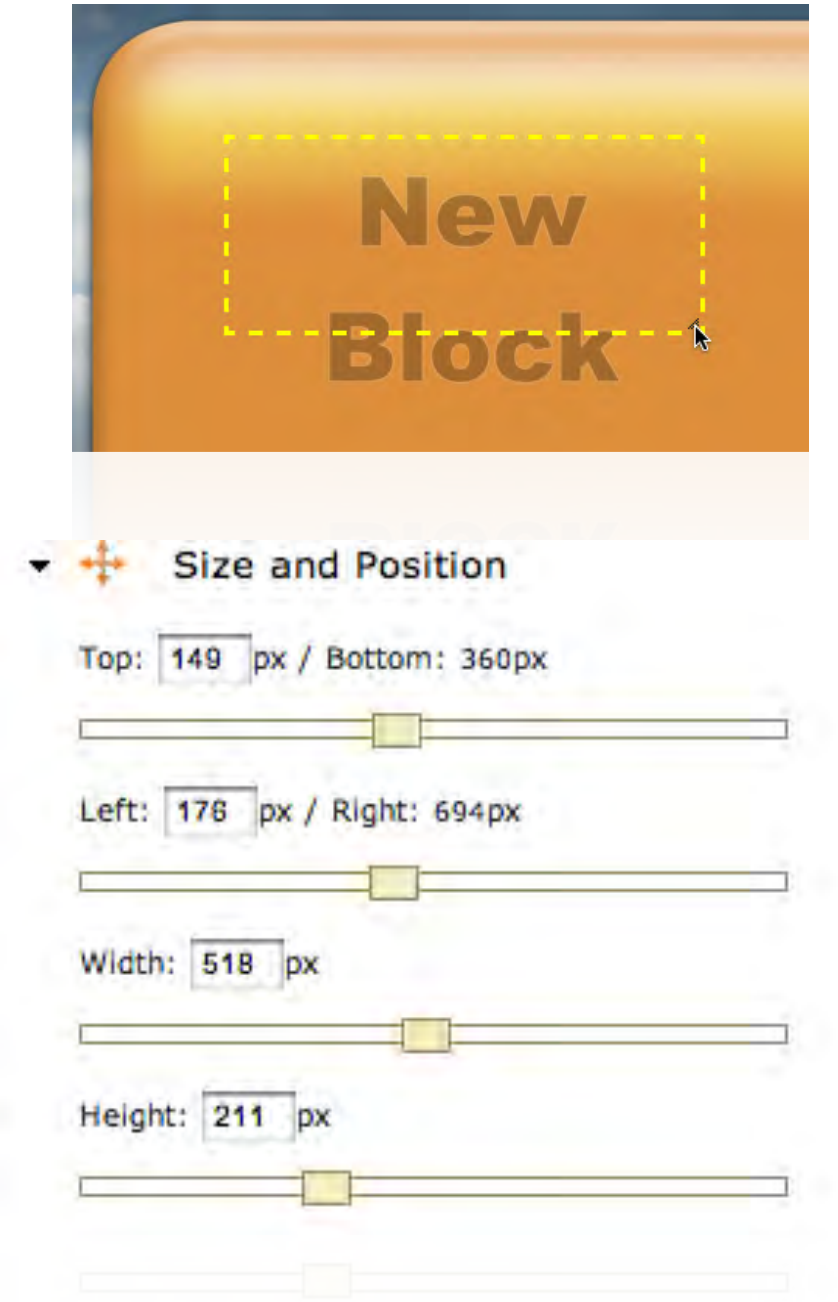


FIGURE 19.13: Resizing a block in the preview window.

Step 10: Another way to get pixel perfect adjustments with blocks is to use some keyboard shortcuts. Select any block then use the following keys:

up/down/left/right arrow keys : These keys move the selected block by 1 pixel.

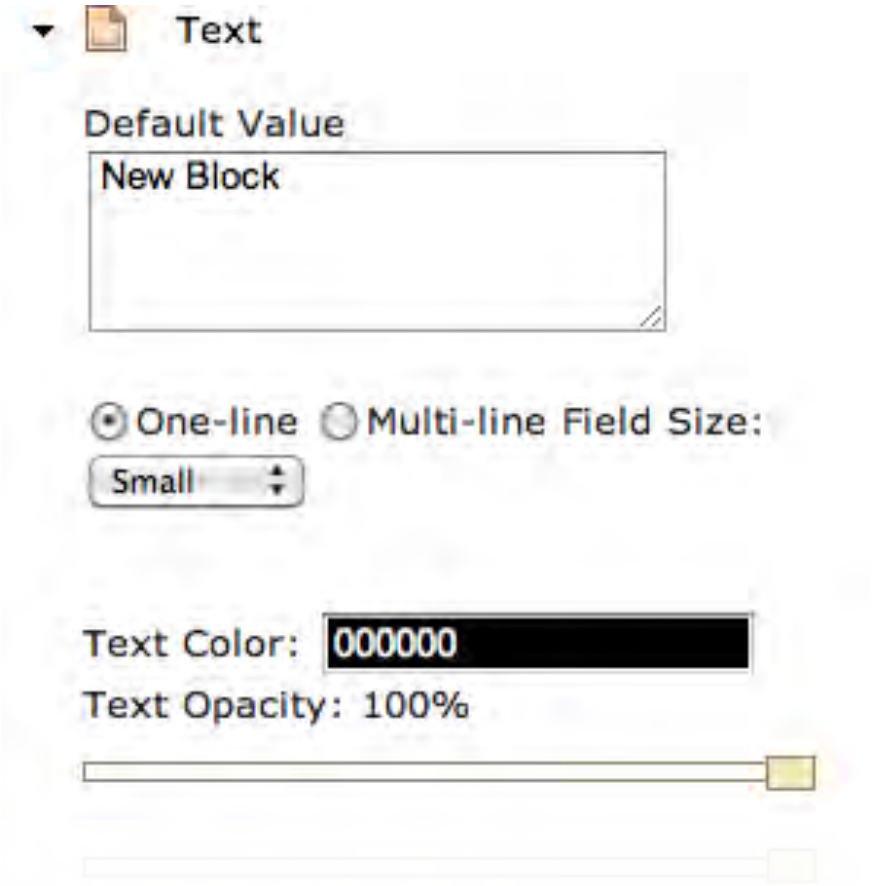
shift + arrow keys : Move the selected block by 10 pixels.

page up/page down : Use these keys to snap the block to the top or bottom of the template.

home : Snaps the block to the top left of the template.

end : Snaps the the block to the bottom right.

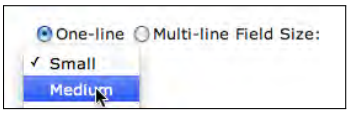
Step 11: With text blocks, you can set how the block appears in the preview window and in the form where the user will edit the text for the bulletin.



The **Default Value** field sets the text that appears first on the bulletin. You might provide the user with an example of what was intended for this block.

The *Default Value* field is limited to 511 characters in length.

If you're allowing the user to enter a great deal of text, such as multiple sentences, you might select the **Multi-line Field Size** radio button. For short bits of text such as titles, the **One-Line** option might be more appropriate.



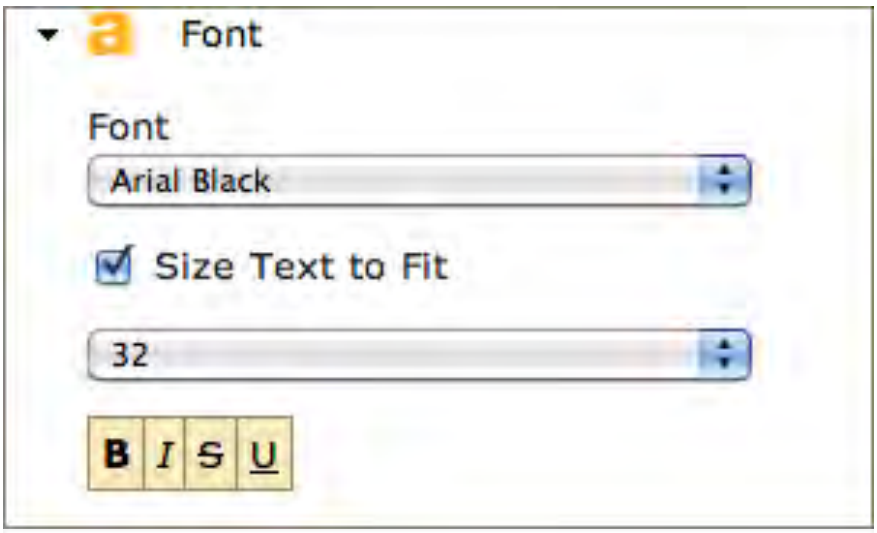
Similarly, the size of the field that they type in is controlled by the **small/medium/large** pop-down list.

To limit the amount of text that can be entered in a text block, select the *Limit Length* check box and enter the maximum number of characters allowed in the available box.

The **Text Color** and **Text Opacity** control the color and transparency of the text. You can see the value's effect in the preview after your adjustments. See section 19.7.3 on page 197 for notes about picking colors.

Step 12: The font controls (figure 19.14 on the next page) affect the entire block of text. You can use these controls to adjust the appearance of all of the text in this block.

FIGURE 19.14: Font controls



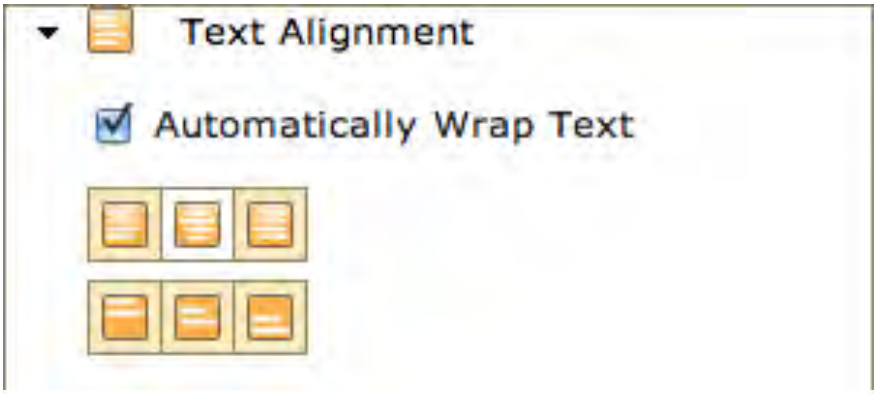
To have the text automatically size to fill the block, chose the **Size Text to Fit**. If this checkbox is used, the font size pop-down list has no effect.

To change the style, use the the style buttons.

When you create a bulletin in Carousel, you have the ability to override some font settings, such as color, bold, and italics. You can even make lists! We cover these capabilities in section 13.2.1 on page 105, *Adding Style using HTML Tags*.

Step 13: The **Text Alignment** controls align the text and control text wrapping for the block.

FIGURE 19.15: Text Alignment controls

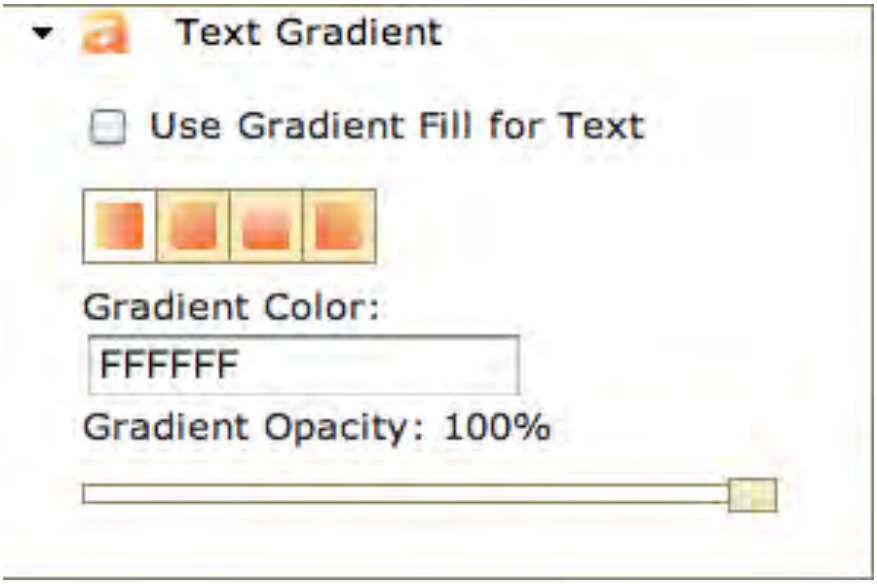


Step 14: To apply a gradient to your text, use the controls in the **Text Gradient** (figure 19.16 on the next page) controls. The **Gradient Color** field controls color for the end of the gradient. The beginning of the gradient is controlled by the **Color** field in the **Text** properties.

You may also adjust the gradient's opacity. Like the color, you're only affecting the end of the gradient. The **Text** properties is where to change the beginning.

Step 15: **Text Outline**, **Text Shadow** and **Text Glow** all operate in the ways that you would

FIGURE 19.16: Text Gradient controls



expect. If you have doubts, try the different controls out to see there effects.

Step 16: While the controls that begin with *Text* modify the look of the text within the block, the controls that start with *Block* control the rectangular area that surrounds the block. You can put a gradient, shadow and outline around your text block, in addition to adding these propertied to the text itself.

When you've changed the data in a field and would like to update it quickly, you can use the "`TAB`" key.

A Note About Reflections

Perhaps the only control requiring explanation is the **Block Reflection** control, shown in figure 19.17 on the following page. It adds a fading reflection of the block and its contents below the borders of the block.

These controls are available for any block, but require special attention in text blocks because the reflection looks best when it touches the bottom of the text, which usually requires playing with the **Offset** slider. When it's set correctly, you'll see something like what is shown in figure 19.18 on the next page.

When it is not, the reflection text will either overlap or be too far away. Sometimes, the reflection will be so far away that you won't see it at all. This is because the **Hight** slider is set to something less than "`100%`". If the reflection is far down enough, it will be beyond the visible part of the reflection. For this reason, slide **Hight** to "`100%`" while you're adjusting the offset and then set it to what looks good when you're done.

! → Keep in mind that if your text is auto sizing, the offset value will be different for different text, requiring the user to go into the template and edit the value when they create their bulletin.

Also, when rotating blocks, text or otherwise, the same adjustment requirements

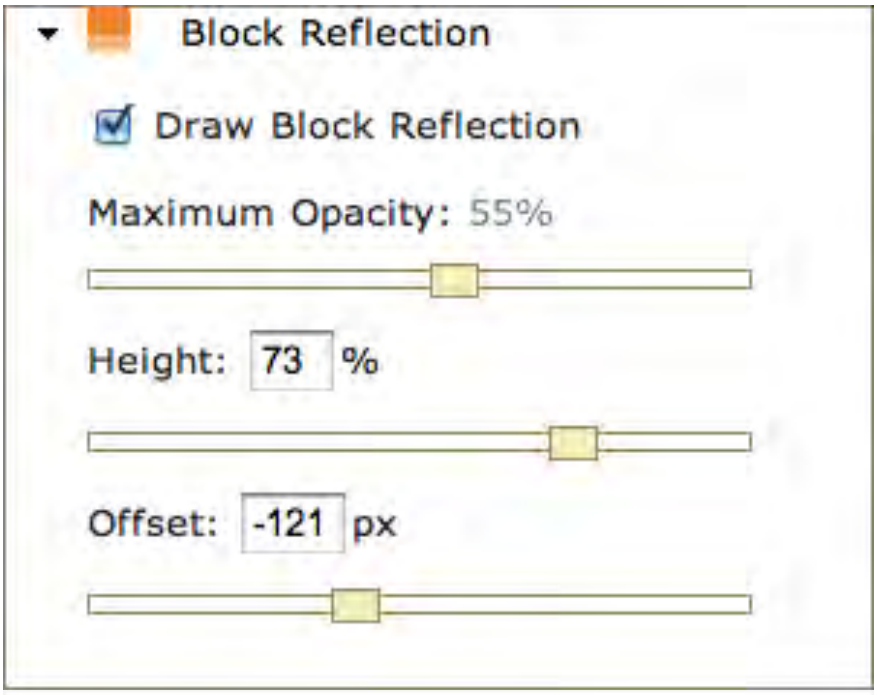


FIGURE 19.17: The Block Reflection controls

FIGURE 19.18: A reflection example.

FIGURE 19.19: The reflection collides with the picture

will apply. Take a look at figure 19.19 on the facing page. Notice how the reflection collides ugily[1] into the rotated picture. In figure 19.20, the problem was solved with an **Offset** of "72" pixels.

FIGURE 19.20: In **Block Reflection**, an offset of "72" pixels was added to take away the collision.

A Note About Picking Colors

You'll notice that when changing colors, you may not see any difference in the preview. This is probably because you have black selected. Changing the hue won't have any effect until you add sum luminance to your selection. Notice the red arrow in figure 19.21. It points to the luminance selector. The higher the value the more luminance.

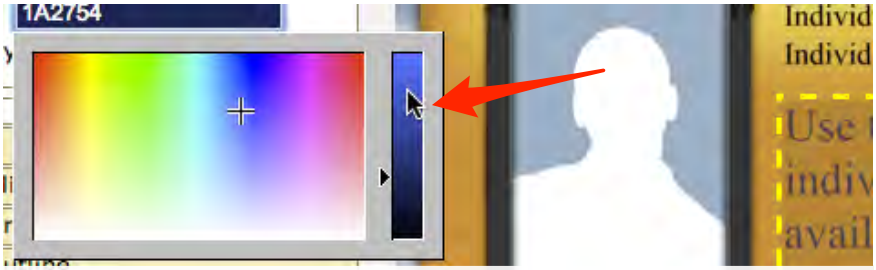


FIGURE 19.21: Add luminance to the color in order to see a change when you select a new hue.

If the luminance selector is all the way down, you'll get a completely black color, no matter the hue.

Picture Blocks

When you create a picture block, you'll have access to the picture block properties, shown in figure 19.22 on the next page.

You can adjust the opacity of the picture with the **Opacity** slider. You can also instruct Carousel to maintain the pictures aspect ratio. Notice the example in figure 19.23 on the following page. The Carousel logo on the left is in a picture box with the **Maintain aspect ratio** checkbox *off*. The logo on the right has the checkbox *on*, which means that it looks correct, even though the dimensions of the block are much wider than the actual logo. Leave **Maintain aspect ratio** on when you want your picture to remain as tall as it is wide, relative to the original picture. When you want it to completely fill the block, turn it off.

[1] New Word: Ugily: In a way that is ugly.

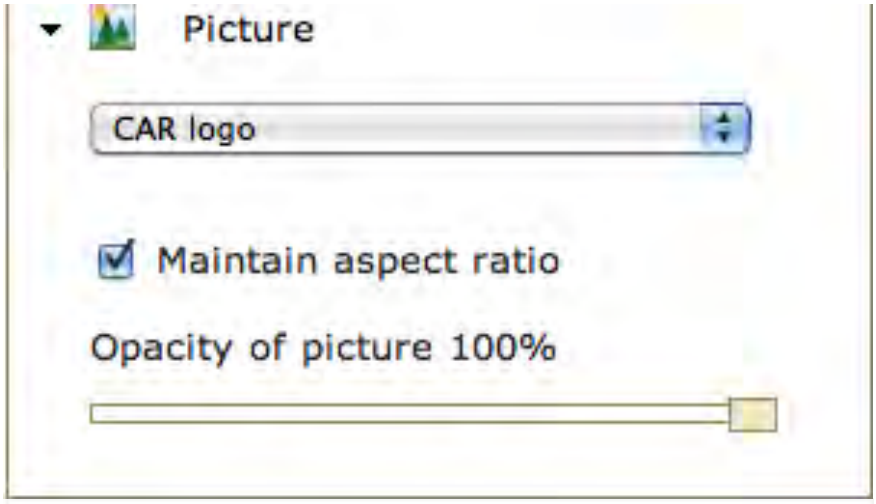


FIGURE 19.22: Picture block properties

FIGURE 19.23: The logo on the left has **Maintain aspect ratio** deselected.

Web Picture Addresses

If you make a web picture block, the **Picture** properties will give you the option to enter an address of a picture (figure 19.24), which defaults to a picture located on Carousel and may be changed to any address of any picture.

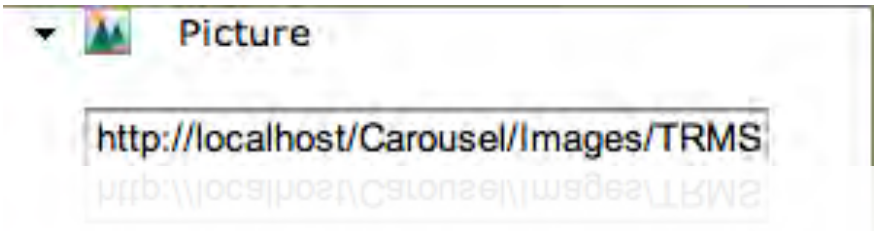


FIGURE 19.24: Web picture address

This is just the default value. The user of the template will most likely change the picture address when they create their bulletin.

Each block is layered in a particular order on top of the background. As you create a new block, it "goes on top" of any other block you may already have within the template. Notice how in figure 19.25 the Carousel logo is in front because its z-order is higher. In figure 19.26, the Carousel logo is in back because the z-order is lower, or another way to put it, the Carousel logo was drawn first.

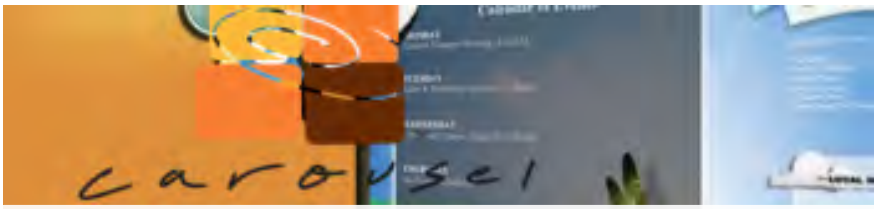


FIGURE 19.25: Carousel logo has a higher z-order

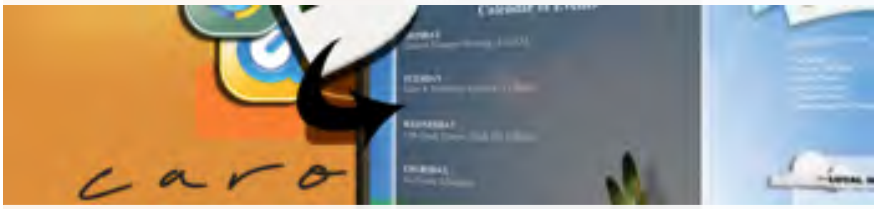


FIGURE 19.26: Carousel logo has a lower z-order

You can change the order that blocks are drawn by dragging **Blocks** properties, which we demonstrate in figure 19.27.

FIGURE 19.27: Changing the z-order of blocks

If you want to move a block all the way forward or back, you can use the **Bring to Front** or **Bring to Back** buttons in **Block Options**, shown in figure 19.28.

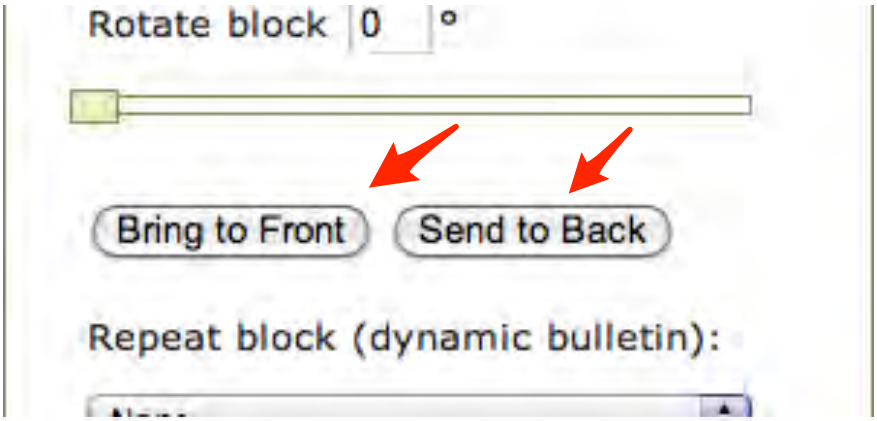


FIGURE 19.28: Bring to Front and Bring to Back in Block Options properties

Repeating Blocks in Dynamic Bulletins

With dynamic bulletins, Carousel can repeat blocks for multiple items of data, such as room numbers, RSS items and shows for Cablecast's schedule.

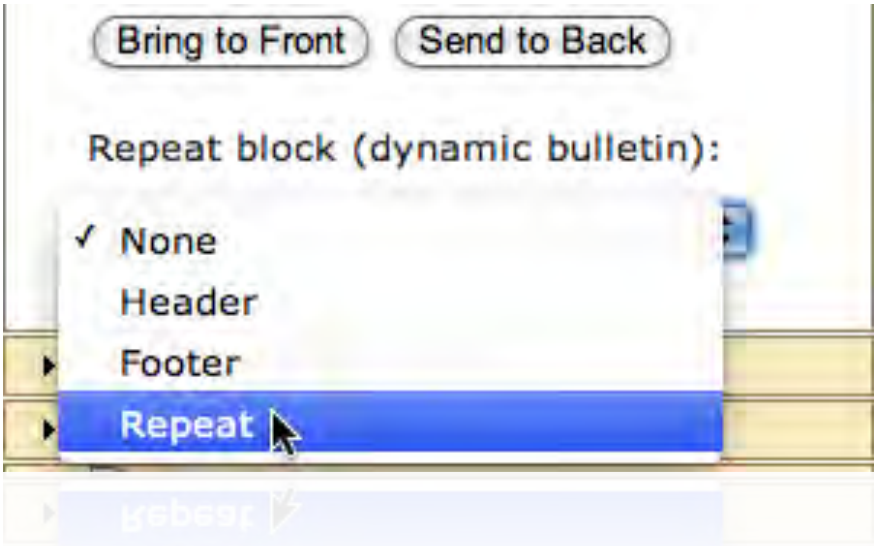


FIGURE 19.29: Repeat blocks pop-down list in Block Options properties

With a block that is repeated, you may use one of four different settings that you'll find in the **Repeat blocks** pop-down list in **Block Options**:

None : The block is drawn where you set it. This is the default setting and is what is used for non-dynamic bulletins. There is no special behavior here.

Header : This actually gets treated the same as the **None** option

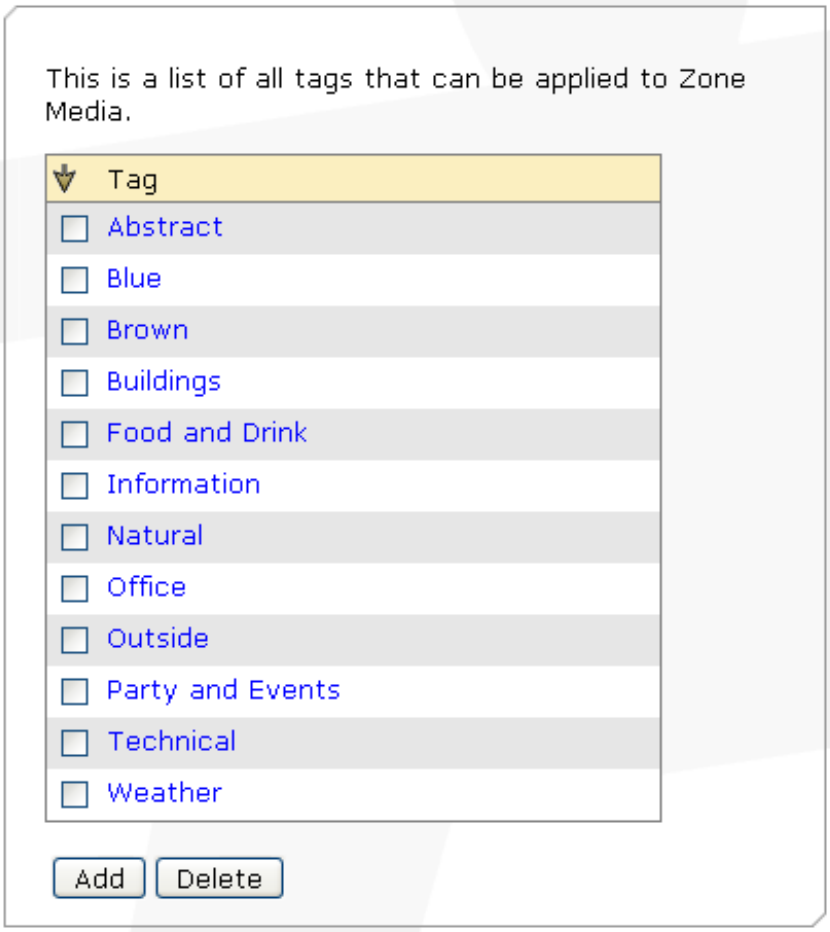
Footer : A footer is drawn where it is placed, but Carousel uses the upper bounds of this block as a *"don't go past here"* marker for blocks that repeat.

Repeat : This setting is used for the items that get repeated in the bulletin.

Dynamic bulletins have templates that cannot be saved. When you create one of these bulletins, you modify the template for that bulletin only. Therefore, the settings in the **Repeat blocks** pop-down list are not applicable to any templates that you make in the *Media: Templates* menu.

19.8 Media Tags

FIGURE 19.30: The Media Tags List



Media tags are used for all of the media for the entire Carousel system. That is, they are not specific to any given zone.

Simply click the **Add** button to add a new tag or delete tags that no longer make sense. Multiple tags may be added by separating them with a comma, rather than adding them one at a time.

19.9 Creating a Seamless Background for a Multi-Zoned Channel

When you have a channel in Carousel that uses multiple zones, sometimes it looks nice when the backgrounds used for those zones have edges that blend into each

other, making a seamless background. You can do this manually in your favorite paint program, but Carousel has a way to do it for you automatically.

Carousel takes a background and stretches it to fill a channel. Then it cuts the image apart, using the edges and position of each zone that is used in that channel. Finally, it saves that image as a background in that zone, prepending the word *'(Seamless)'*.

configuration: Channels: <channel name>: Add Seamless Channel Background

To access this feature, go to the *configuration: Channels: <channel name>: Add Seamless Channel Background* form, shown in figure 19.31.

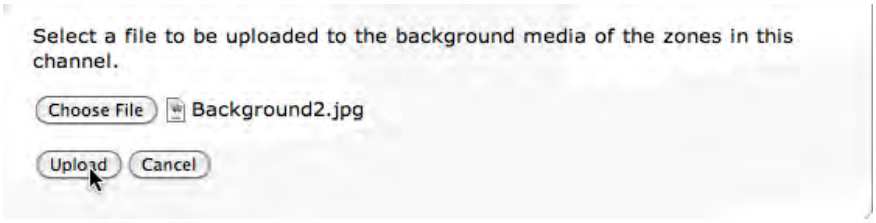

Select a file to be uploaded to the background media of the zones in this channel.
Choose File
Background2.jpg
Upload
Cancel

FIGURE 19.31: The *Add Seamless Background* form.

Step 1: Click the **Choose File** button to select the background file that you want to upload.

Remember, this file is going to be stretched to fill the current channel that you have selected. It's best if the file matches the channels total resolution.

Step 2: Click the **Upload** button and your background will be processed.

Step 3: You'll see a form like the one in figure 19.32 on the next page.

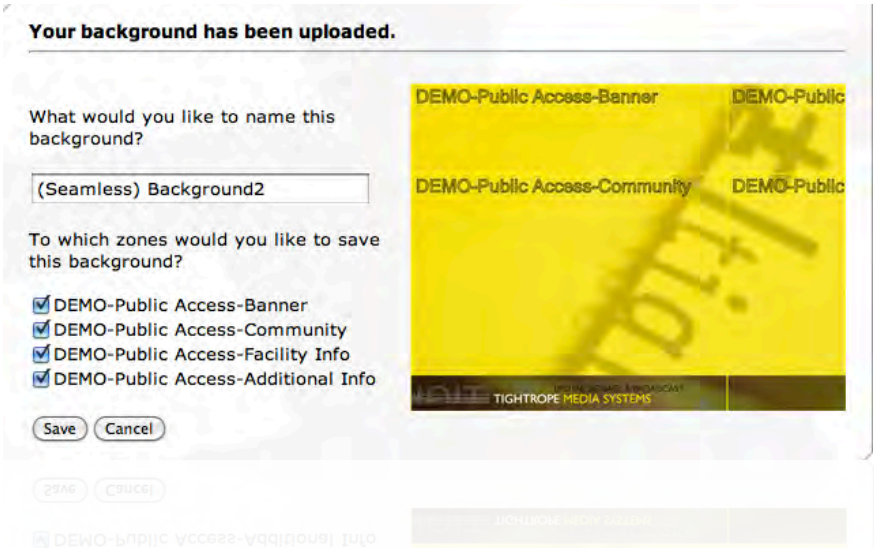
Step 4: A background of the name listed in the **What would you like to name this background?** field will be created for each of the zones that are checked below the **To which zones would you save this background?** label.

Step 5: You can see a preview of the backgrounds that will be created to the right.

Step 6: You may change the name of the background to anything that you like.

Step 7: If you uncheck any of the zones in the list, the background will not be created for that zone.

FIGURE 19.32: Splitting a background



When creating a channel that uses seamless backgrounds, very often you'll only use backgrounds that *are* seamless. You won't want users putting their own backgrounds in any of their messages and you won't want any of the generic backgrounds that come with Carousel in any of the zones that are in use for those channels.

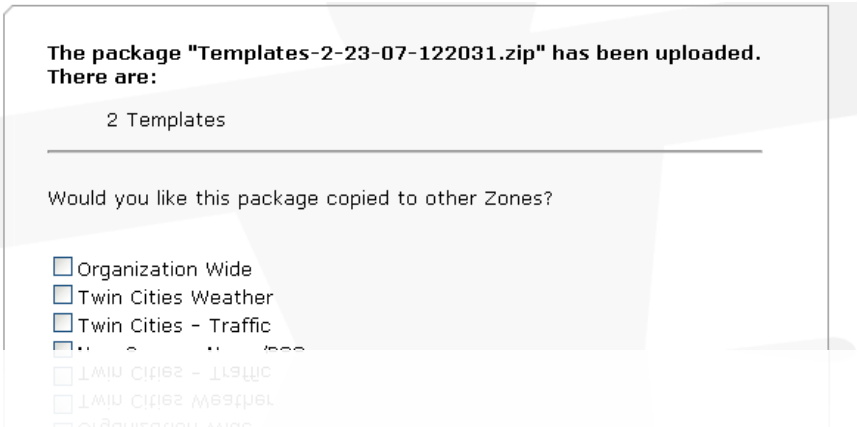
19.10 Adding Media Packages

Media packages are zip files created by Carousel that contain any combination of templates, backgrounds, pictures, sounds, videos and Carousel bulletins.

For information on creating media packages, see section 19.11 on the following page, *Creating Media Packages*.

When you upload Carousel bulletins, the original schedule is retained.

FIGURE 19.33: Uploading Media Packages


The package "Templates-2-23-07-122031.zip" has been uploaded.
There are:
2 Templates
Would you like this package copied to other Zones?
Organization Wide
Twin Cities Weather
Twin Cities - Traffic

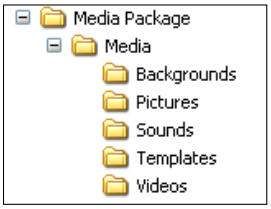
After a successful upload, Carousel gives you a confirmation, noting the items that it found. Check the zones that you would like the items copied to and Click **Save** to import them.

19.11 Creating Media Packages

The zip files that are uploaded into Carousel follow a special file structure to inform Carousel what type of media they are (backgrounds, templates, pictures, etc.). Complete the following steps to create a media package.

Step 1: Create a folder called "`Media Package`".

Step 2: Within the **Media Package** folder create a folder entitled "`Media`"



Step 3: Within the **Media** folder create a folder entitled with the type of media that it contains (i.e. "`Backgrounds`"). The following "keywords" may be used:

- Backgrounds
- Pictures
- Sounds
- Templates
- Videos

For information on acceptable file formats see section 19.2 on page 180.

You can create multiple folders inside the "`Media`" folder to upload several different types of media at once.

Step 4: Zip the **Media Package** folder.

Media: Zone tab: Add Media Package

Step 5: From the Carousel web interface, head into the *Media: Zone tab: Add Media Package*.

Step 6: **Browse...** to the **Media Package** zip file and **Upload**.

Step 7: Choose if you'd like these files copied to any other zones and choose **Save**.

Your uploaded media is now in the system and able to be used for future bulletin creation.

20 Extras

Carousel includes alternate output capabilities that are available from the **Main Menu** by clicking on **Extras**.

FIGURE 20.1: The Extras Form

Screensaver:
Windows
Macintosh
Macintosh (64-bit for MacOS X 10.6 or later)
An RSS feed of the active bulletins on this Zone can be found at this URL:
http://10.0.1.95/Carousel/Public/PublicSiteRSS.aspx?ZoneID=4
The Public web interface for Carousel (for all zones) can be found at this URL:
http://10.0.1.95/Carousel/Public/
The Public web interface for the current zone Spring-4x3-Community can be found at this URL:
http://10.0.1.95/Carousel/Public/Frameset.aspx?ZoneID=4
The web preview for this zone can be found at this URL:
http://10.0.1.95/Carousel/Public/WebDisplay.aspx?ZoneID=4

20.1 Screensaver

Carousel Pro and Carousel Enterprise include a screensaver option. This feature will run a specified channel's bulletins as a bouncing display when installed on your desktop computer. Video, Flash, PowerPoint, Crawls, and audio are not included in the screensaver presentation.

The **Windows** and **Macintosh** hyperlinks provide the installers for Apple's Mac OS X and Microsoft's Windows 2000, XP and Vista operating systems.

Download these installers and run them on the computers that you desire. Go to the operating system's screen saver and select *Carousel Screensaver*. From within the settings menu enter the URL of the server as well as the Channel you'd like to display.

If you're planning on deploying the screensaver to a large number of systems, a generalized config file may be created to install on each system. Create a file named CarouselScreenSaver.cfg and save it in the same directory as the CarouselScreen-Saver.scr file. This is usually the System32 or SYSWOW64 folder, depending on your version of Windows. The config file only needs the following two lines within it:

Channel=<ChannelID>

URL=<Server IP or Name>

20.2 RSS Output

All Carousel systems include the ability to export their bulletins as an RSS feed. Clicking on the link will open the feed in your web browser. Copy the link into any software that can consume RSS.

This is a great way to integrate Carousel into other software, including other web applications.

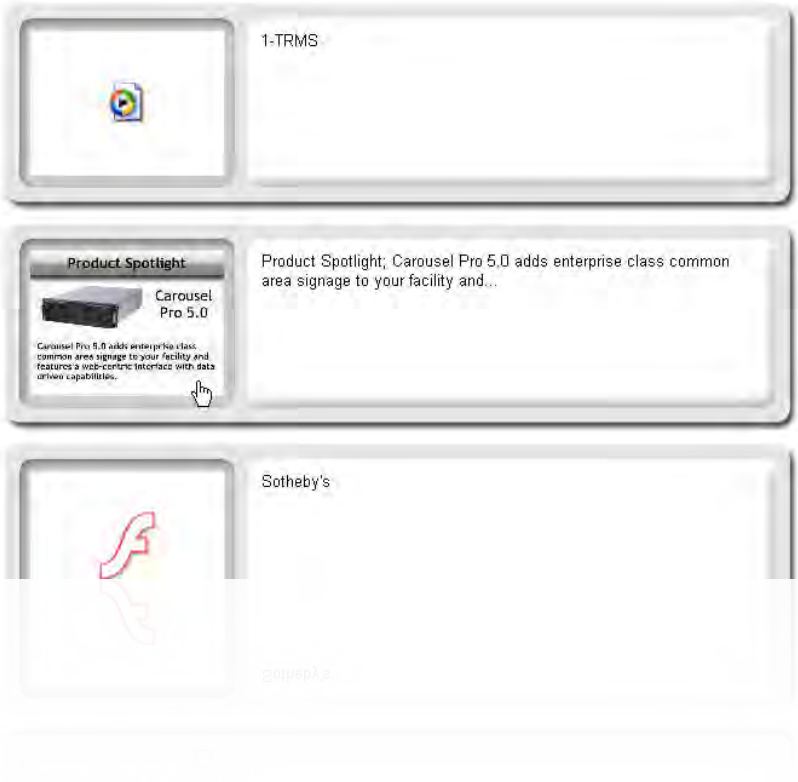
20.3 Public Web Interface

Carousel can display a zone on a publicly available web link, which is displayed here. Simply click on this link to see this web interface. You may also link to it from another website.

A bit of web master speak here: IFrames come in in handy here. Just plunk this link into an IFrame inside your website and you're done! Your web visitors can see the Carousel bulletins and still navigate your site.

Be sure to visit section 10.1.2 on page 92 to learn how to enable the public website output for the desired zones.

FIGURE 20.2: The Public Website



ïż£

21 Remote Data Adaptor

Pro/Enterprise Editions: Carousel Pro and Carousel Enterprise include a special feature called the Remote Data Adaptor (RDA). It provides an XML interface for creating bulletins. Using this feature, it is possible to integrate external systems, such as databases and building systems, using simple programs developed in the field.

This chapter is not a primer on XML, XSD, database integration, or programming. It is intended for those that are already somewhat familiar with such technology and are seeking to integrate Carousel into data systems.

RDA is implemented by sending a properly formed XML-based command to the Carousel server, which will reply with an XML-based response. XML commands are validated against the *CarouselRemoteCommand* schema, which is illustrated later on in section 21.5 on page 213.

21.1 Communications

Communication between other applications and Carousel is initiated on a TCP/IP socket connection using port 56906. The Carousel server will listen on this port for a *CarouselCommand*. Upon receiving a well-formed command, the server will process it and return a *CarouselResponse*.

Using the *CarouselCommand*, your application will have the tools to dynamically create bulletins and crawls. Using the information that Carousel returns in *CarouselResponse*, you also have the ability to manage those bulletins.

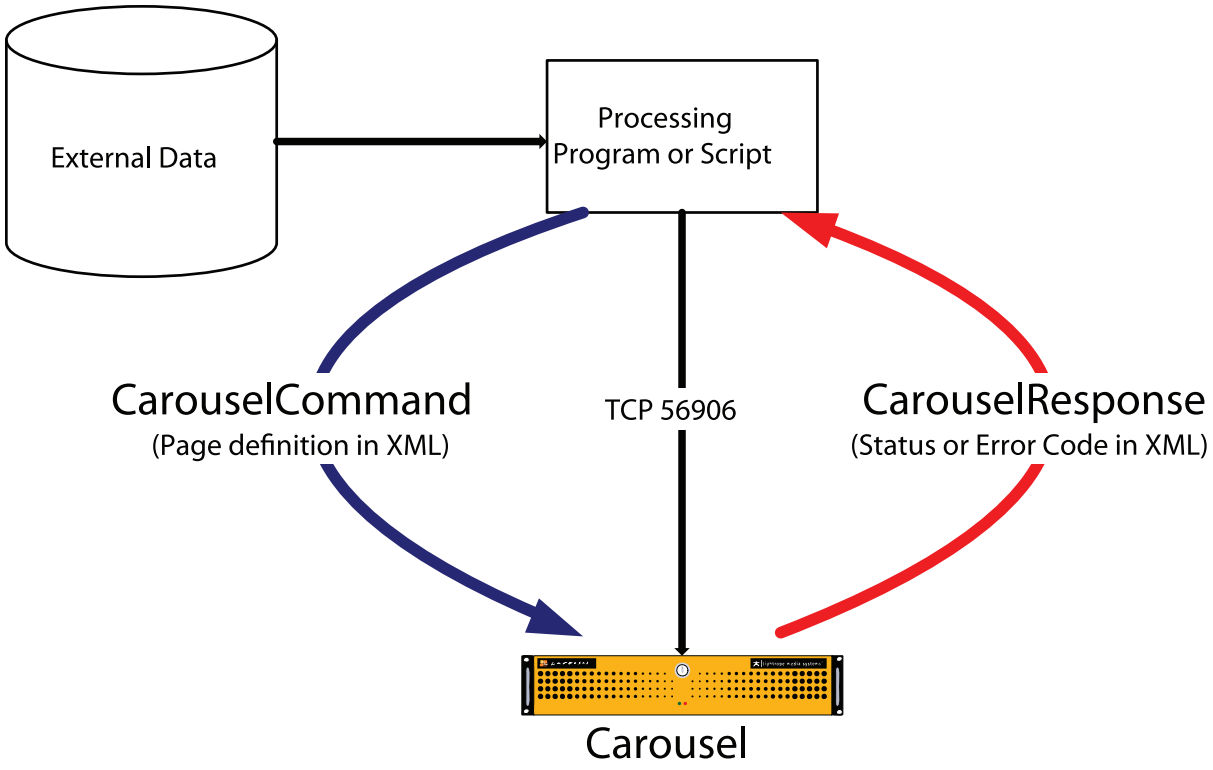


FIGURE 21.1: An application or script sits between your data and Carousel. It communicates on TCP port 56906 and sends Carousel a *CarouselCommand* XML data structure. Carousel returns a *CarouselResponse*, which is a status or error.

21.2 Workflow of RDA

Generally, applications that interact with Carousel through RDA will follow a standard workflow. Bulletins and crawls are created and controlled by the RDA using a valid FrontDoor user account, just as if you were creating and controlling bulletins through Carousel's web interface. By establishing a user account and templates specifically for RDA, you can construct remarkably powerful applications with very little hassle.

A *CarouselCommand* consists of one of many unique commands. If your application wishes to create a bulletin on Carousel, it would first construct a *CreatePage* command, specifying the template it wants to use and the text it wants to place within the template. The application would then send the command to Carousel, and assuming success, Carousel responds in kind with a success message with a unique identifier for the new bulletin.

This Global Unique Identifer (*GUID*) is used so your application can later send a command that references that specific bulletin, either to delete it, deactivate it, or otherwise change its status.

Example: Someone passes through a security gate. An application looks up the person in the company's database then sends a *CarouselCommand* to create a new bulletin, using a special template that welcomes the person by name. Fifteen seconds later,

the application sends a *delete* command that includes the GUID, so that Carousel knows to delete that bulletin.

Example: A fire alarm is tripped and a special application interacts with Carousel to inform people of the appropriate exit plan. First, the application sends a *deactivate* command, which deactivates all current alert bulletins on the target zones. Then it creates a series of alert bulletins on those same zones using the *CreateAlertPage* command. Each zone, unique to specific parts of the building, then displays 4 or 5 bulletins that give relevant exit information, based on the alarm that was triggered and the location of the display. When the alarm is canceled, the application sends another *deactivate* command.

As you read through the rest of this chapter, you will get an idea of how Carousel's *CarouselCommand* structure and the information contained in the *CarouselResponse* help create a powerful tool for integrating Carousel with external systems.

21.3 Elements of CarouselCommand

The following commands are available in the *CarouselCommand* data structure:

CreatePage : Creates a bulletin from a template.

CreateCrawl : Creates a crawl bulletin.

ChangePageStatus : Get the status of bulletins that you create with your application.

DeletePage : Changes a bulletin's status.

ArchivePage : Moves a bulletin to the users "saved" folder.

SetPageStatus : Sets the status of a particular page. Current=1, Queued=2, Hold=4, Saved=8, Stale=16.

DeleteAllUserPages : Deletes all of a user's bulletins.

DeactivateAllAlertPages : Deactivates all alert bulletins on a specified zone.

UpdatePage : Updates a current bulletin.

GetPlayerStatus : Returns an array of status messages for all of the players on your Carousel system.

GetBulletinList : Returns an array of bulletins that are in a zone.

GetTemplateList : Returns an array of templates that are in a zone.

GetZoneList : Returns an array of zones that a user has access to.

GetVideoList : Returns a list of video elements that contain a name, value (GUID), and URLs for a preview image.

GetPictureList : Returns a list of picture elements that contain a name, value (GUID), and URLs for a preview image.

When creating an application that sends data to Carousel, you will include some or all of the following information in your CarouselCommand:

Username : This is the username that was created in FrontDoor that the application will use to authenticate. Bulletins created via RDA will be owned by this user. Generally, this will be an account used exclusively by the RDA plug-in.

Password : This is the password associated with the above username that the application will use to authenticate.

Think twice before using a "real-life" user account with RDA. By using a new account specifically for RDA, you won't run the risk of programmatically deleting someone else's bulletins!

GUID : This is a bulletin's unique identifier. When you create a page using RDA, Carousel will return a success code that includes this GUID. Your application should save this information so that it can later manipulate it through RDA.

SelectBulletinTags : Instead of referring to bulletins via their GUIDs, you can select bulletins to update using Bulletin Tags. An example of this is shown in section 21.5.2 on page 215.

ZoneSet : A list of Carousel zones on which the bulletin you are creating is to be displayed. Inside of a ZoneSet you can can refer to zones by their ZoneID, their ZoneName, or by specifying a ZoneTag (all zones with that ZoneTag will be used).

Template Name : This is the name of the template Carousel will use to render the bulletin.

Blocks : This is a list of the blocks (referenced by name) within the above specified template. Each block has a value that will be used to render the text for that block.

To determine the ZoneID, visit the **Main Menu : Extras** page for the Zone of interest. In the links for the RSS feeds and Public site, you should see a "ZoneID=X" parameter. The "X" is your Zone ID.

Additionally, the Blocks command noted above now also returns a "type" field, along with the original "value". You can specify the block type when updating a bulletin, but this is not required. (It will keep the block type it is currently using.) The Block types are:

TRMSTextBlock : The specified value will be the text of the block.

TRMSWebPictureBlock : The value specifies a URL for an image.

TRMSPictureBlock : The value specifies a GUID for an image (see GetPictureList).

TRMSVideoBlock : The specified value will be a GUID for a video media item (see GetVideoList).

TRMSVideoURL : The value specifies a URL for a live stream video bulletin.

TRMSRSSURL : The value specifies a URL for the feed in an RSS bulletin or crawl.

There are several other parameters to each of the *CarouselCommands*. For more details, see section 21.5.2 on the next page, *Command Examples*.

21.4 Elements of CarouselResponse

After sending a *CarouselCommand*, a response will be generated indicating the result of the command. Common response data includes:

Result : Either "Success" or "Error" depending on whether the associated command has successfully executed.

Description : A short message describing what happened as a result of the command. If the result was an error, the message will state what went wrong.

GUID : If bulletins were created, there will be a GUID listed for each bulletin.

PlayerStatusList : If you set a GetPlayerStatus command, this will contain a list of player statuses for all of the players in your Carousel system.

For examples, see section 21.5.3 on page 217.

21.5 Schema and Examples

This section contains the full CarouselRemoteCommand XSD, plus an example of each command.

21.5.1 CarouselRemoteCommand XSD

The XSD file for RDA can be found living in the same directory as the Carousel Service. Typically, this will be:

"`D:\TRMS\Services\Carousel\CarouselRemoteCommand.xsd`".

21.5.2 Command Examples

In this section, we'll demonstrate RDA's power through some examples.

CreatePage

Here's a *CreatePage* command, filled with descriptive comments

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
    <CreatePage>
        <!-- Login info -->
        <UserName>John</UserName>
        <Password>trms</Password>

        <!-- This page will run on ZoneID 1. -->
        <ZoneSet>
          <ZoneID>1</ZoneID>
        </ZoneSet>

        <!-- This page will run on a schedule, defined below. -->
        <AlwaysOn>false</AlwaysOn>

        <!-- Start running the page on Oct 26 at midnight -->
        <DateTimeOn>2005-10-26T00:00:00</DateTimeOn>

        <!-- Stop at the last second of Oct 29th -->
        <DateTimeOff>2005-10-29T23:59:59</DateTimeOff>

        <!-- Only run the page from 8am... -->
        <CycleTimeOn>08:00:00</CycleTimeOn>

        <!-- ...to 5pm on the above days -->
        <CycleTimeOff>17:00:00</CycleTimeOff>

        <!-- Display this page for 30 seconds each cycle. -->
        <DisplayDuration>30</DisplayDuration>
```

```
        <!-- Show the page every day -->
        <Weekdays>127</Weekdays>

        <!-- Allow the page to be seen on the web -->
        <WebEnabled>true</WebEnabled>

        <!-- An optional description of this page. -->
        <Description>This is a sample page that we created
        via the remote command system.</Description>

        <!-- This is a standard page, not an alert page -->
        <PageType>Standard</PageType>

        <!-- Use the "Title Body" template -->
        <PageTemplate>
            <TemplateName>Title Body</TemplateName>
            <!-- Stick "Hello" into the Title block -->
            <Block Name="Title" Value="Hello" />
            <!-- Stick "World" into the body block -->
            <Block Name="Body" Value="World!" />
        </PageTemplate>
    </CreatePage>
</CarouselCommand>
```

CreatePage: Same bulletin on multiple zones with ZoneTagging

Here's a *CreatePage* command that will create the same bulletin on several zones using the ZoneSet element:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
  <CreatePage>
    <UserName>John</UserName>
    <Password>trms</Password>

    <!-- List the zones to which this bulletin should be sent -->
    <ZoneSet>
      <ZoneTag>EastCampus</ZoneTag>
      <ZoneID>4</ZoneID>
      <ZoneID>5</ZoneID>
      <ZoneTag>Libraries</ZoneTag>
      <ZoneName>Classroom320</ZoneName>
      <ZoneID>4</ZoneID>
      <ZoneName>MiddlebrookHall</ZoneName>
    </ZoneSet>

    <AlwaysOn>true</AlwaysOn>
    <PageType>Standard</PageType>
    <PageTemplate>
      <TemplateName>Title Body</TemplateName>
```

```
      <Block Name="Title" Value="Hello" />
      <Block Name="Body" Value="World!" />
    </PageTemplate>
  </CreatePage>
</CarouselCommand>
```

UpdatePage: Updating existing Bulletins with SelectBulletinTags

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
      <UpdatePage>
              <UserName>John</UserName>
              <Password>trms</Password>
              <SelectBulletinTags>
                      <Tag>DailyAnnouncement</Tag>
              </SelectBulletinTags>
              <Block Name="Title" Value="TodayâĂŹs announcement" />
              <ExclusiveAlertOn>true</ExclusiveAlertOn>
      </UpdatePage>
</CarouselCommand>
```

CreateCrawl

Here's a sample *CreateCrawl* command:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
    <CreateCrawl>
        <UserName>John</UserName>
        <Password>trms</Password>
        <CrawlText>This is the text I'd like to see
        at the bottom of the screen.</CrawlText>
        <ZoneSet>
          <ZoneID>3</ZoneID>
        </ZoneSet>
        <AlwaysOn>false</AlwaysOn>
        <DateTimeOn>2005-10-26T00:00:00</DateTimeOn>
        <DateTimeOff>2005-10-29T23:59:59</DateTimeOff>
        <Weekdays>127</Weekdays>
        <WebEnabled>true</WebEnabled>
    </CreateCrawl>
</CarouselCommand>
```

ChangePageStatus

Here's how to change a bulletin's status using the *ChangePageStatus* command:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
    <!-- This command will set the status of
    the specified page to on. -->
```

```
    <ChangePageStatus>
        <UserName>John</UserName>
        <Password>trms</Password>
        <GUID>77c0592c-e13e-46de-b2dc-5617e119452a</GUID>
        <Status>on</Status>
    </ChangePageStatus>
</CarouselCommand>
```

DeletePage

Deleting bulletins is easy, as long as you know the GUID of the bulletin you want to remove:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
    <!-- This command will delete the specified page,
    assuming that the user John has permission to do so. -->
    <DeletePage>
        <UserName>John</UserName>
        <Password>trms</Password>
        <GUID>77c0592c-e13e-46de-b2dc-5617e119452a</GUID>
    </DeletePage>
</CarouselCommand>
```

DeleteAllUserPages

The *DeleteAllUserPages* command deletes all bulletins associated with a particular user. If you use a specific account for creating all RDA bulletins, this command is a quick way to clear them all out.

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
    <!-- Sending this command will permanently
    delete ALL pages created by John -->
    <DeleteAllUserPages>
        <UserName>John</UserName>
        <Password>trms</Password>
    </DeleteAllUserPages>
</CarouselCommand>
```

DeactivateAllAlertPages

If you have alert bulletins running the *DeactivateAllAlertPages* command will turn them all off at once:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselCommand xmlns="http://www.trms.com/CarouselRemoteCommand">
    <!-- Sending this command will turn off all
    alert pages on a Zone. -->
    <DeactivateAllAlertPages>
```

```
        <UserName>John</UserName>
        <Password>trms</Password>
        <Zone>all</Zone>
    </DeactivateAllAlertPages>
</CarouselCommand>
```

21.5.3 Response Examples

Here's a typical response after sending a *CreatePage* command:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselResponse xmlns="http://www.trms.com/CarouselRemoteCommand">
    <Result>Success</Result>
    <Description>Pages were sucessfully created.</Description>
    <GUID>77c0592c-e13e-46de-b2dc-5617e119452a</GUID>
</CarouselResponse>
```

And here is a typical error response:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselResponse xmlns="http://www.trms.com/CarouselRemoteCommand">
    <Result>Error</Result>
    <Description>The specified page GUID does not exist.</Description>
</CarouselResponse>
```

Here is a sample response to the GetPlayerStatus command:

```
<?xml version="1.0" encoding="utf-8" ?>
<CarouselResponse xmlns="http://www.trms.com/CarouselRemoteCommand">
  <Result>Success</Result>
  <PlayerStatusList>
    <PlayerStatus>
      <HostName>PLAYER1</HostName>
      <HostAddress>192.168.0.1</HostAddress>
      <HardwareID>XXXX</HardwareID>
      <VersionStatus>OK</VersionStatus>
      <PlayerVersion>6.0.0</PlayerVersion>
      <CheckinStatus>OK</CheckinStatus>
      <LastCheckinUTC>2009-06-17T00:00:00</LastCheckinUTC>
      <SubscribedChannelName>Channel1</SubscribedChannelName>
    </PlayerStatus>
    <PlayerStatus>
      <HostName>PLAYER2</HostName>
      <HostAddress>192.168.0.2</HostAddress>
      <HardwareID>XXXX</HardwareID>
      <VersionStatus>OK</VersionStatus>
      <PlayerVersion>6.0.0</PlayerVersion>
      <CheckinStatus>OK</CheckinStatus>
      <LastCheckinUTC>2009-06-17T00:00:00</LastCheckinUTC>
      <SubscribedChannelName>Channel2</SubscribedChannelName>
    </PlayerStatus>
```

```
  </PlayerStatusList>
</CarouselResponse>
```

21.6 RDA Schema

This section contains the RDA Schema. If you are familiar with XML, this may be helpful information for you.

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema id="CarouselRemoteCommand" targetNamespace="http://www.trms.com/CarouselRemoteCommand" elementF
  <xs:element name="CarouselCommand">
    <xs:annotation>
      <xs:documentation>
      A Carousel Command consists of exactly one of the following commands:
      - CreatePage
      - CreateCrawl
      - ChangePageStatus
      - DeletePage
      - DeleteAllUserPages
      - DeactivateAllAlertPages
      - GetPlayerStatus
      - UpdatePage
      - GetZoneList
      - GetTemplateList
      - GetBulletinList
      - GetPictureList
      - GetVideoList
      - ArchivePage
      - SetPageStatus
      Definitions of the commands are described later.
    </xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:choice>
          <xs:element name="CreatePage" type="ctCreatePage" />
          <xs:element name="CreateCrawl" type="ctCreateCrawl" />
          <xs:element name="ChangePageStatus" type="ctChangePageStatus" />
          <xs:element name="DeletePage" type="ctDeletePage" />
          <xs:element name="DeleteAllUserPages" type="ctDeleteAllUserPages" />
          <xs:element name="DeactivateAllAlertPages" type="ctDeactivateAllAlertPages" />
          <xs:element name="GetPlayerStatus" type="ctGetPlayerStatus" />
          <xs:element name="UpdatePage" type="ctUpdatePage" />
          <xs:element name="GetZoneList" type="ctGetZoneList" />
          <xs:element name="GetTemplateList" type="ctGetTemplateList" />
          <xs:element name="GetBulletinList" type="ctGetBulletinList" />
          <xs:element name="GetPictureList" type="ctGetPictureList">
          </xs:element>
          <xs:element name="GetVideoList" type="ctGetVideoList" />
          <xs:element name="ArchivePage" type="ctArchivePage" />
          <xs:element name="SetPageStatus" type="ctSetPageStatus" />
        </xs:choice>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="CarouselResponse">
    <xs:annotation>
      <xs:documentation>
                After sending a CarouselCommand, expect a CarouselResponse.
                - The Result will be either "Success" or "Error".
```

```
              - The optional Description field will contain any details.
              - The optional GUID fields will contain the GUID of pages created via a CreatePage or Creat
      - The optional PlayerStatusList field will contain a list of player statuses if this is a response
          </xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element name="Result" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Description" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="GUID" type="xs:string" maxOccurs="unbounded" minOccurs="0" />
      <xs:element name="PlayerStatusList" type="ctPlayerStatusList" minOccurs="0" maxOccurs="1" />
      <xs:element name="Zone" type="ctZone" minOccurs="0" maxOccurs="unbounded" />
      <xs:element name="Template" type="ctTemplate" maxOccurs="unbounded" minOccurs="0" />
      <xs:element name="Bulletin" type="ctBulletin" minOccurs="0" maxOccurs="unbounded" />
      <xs:element name="Media" type="ctMedia" maxOccurs="unbounded" minOccurs="0" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:complexType name="ctChangePageStatus">
  <xs:annotation>
    <xs:documentation>
              This command allows you to make a user's page active or inactive.
              For example, after creating a page to run every day all day for the next month, let's say
              you decide that it shouldn't be run for the next few hours.  Use this command to set it's
              status to "off" until you're ready for it to go back on the air, at which point you'd set
              it's status back "on."
              - UserName is a valid user in FrontDoor.
              - Password is UserName's password.
              - GUID is the identifer for the page you wish to modify, which was returned when you create
                  This page must be owned by UserName.
              - Status is either "on" or "off".
          </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:choice maxOccurs="1" minOccurs="1">
      <xs:element name="GUID" type="xs:string" />
      <xs:element name="SelectBulletinTags" type="ctBulletinTagList" />
    </xs:choice>
    <xs:element name="Status" type="xs:string" maxOccurs="1" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctDeletePage">
  <xs:annotation>
    <xs:documentation>
              This command allows you to delete a particular page (owned by UserName) from the system.  I
              If you'd rather turn the page off for some time, use ChangePageStatus.
              - UserName is a valid user in FrontDoor.
              - Password is UserName's password.
              - GUID is the identifer for the page you wish to delete, which was returned when you create
                  This page must be owned by UserName.
```

```
          </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="GUID" type="xs:string" maxOccurs="1" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctDeleteAllUserPages">
  <xs:annotation>
    <xs:documentation>
              This command will delete all pages created by the specified UserName.
              - UserName is a valid user in FrontDoor.
              - Password is UserName's password.
          </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctDeactivateAllAlertPages">
  <xs:annotation>
    <xs:documentation>
              This command allows you to deactivate all alert pages on a Zone.  Note that the alert pages
              deleted.  Instead, their expire time is set to now.  They will then be automatically moved
              of the user who created the alert page.
              - UserName is a valid user in FrontDoor.
              - Password is UserName's password.
              - ZoneSet restricts the deactivation to a certain set of Zones.  Alert pages on Zones not i
      - (Zone is depreciated. Use ZoneSet instead.)
          </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:choice maxOccurs="1" minOccurs="1">
      <xs:element name="Zone" type="xs:string" />
      <xs:element name="ZoneSet" type="ctZoneSet" />
    </xs:choice>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctCreateCrawl">
  <xs:annotation>
    <xs:documentation>
      This command will create or update a crawl on the system.
      - UserName is a valid user in FrontDoor.
      - Password is UserName's password.
      - UpdateGUID is the optional identifier for the crawl you wish to update. If not specified, this wi
      - SelectBulletinTags when used instead of UpdateGUID will be used to send this command to multiple
      - CrawlText is the text you'd like to crawl.
      - ZoneSet specifies the zones on which this crawl should run. See the documentation for ctZoneSet.
```

```
      - (Zone is depreciated. Use ZoneSet instead.)
      - AlwaysOn sets the crawl to always run until manually deleted or turned off.
      - DateTimeOn sets the date and time that the crawl will become active. (Overridden if AlwaysOn=true
      - DateTimeOff sets the date and time that the crawl will deactivate. (Overridden if AlwaysOn=true)
      - CycleTimeOn sets the time that the crawl will start beign shown on any given day. (Overridden if
      - CycleTimeOff sets the time that the crawl will stop being shown on any given day. (Overridden if
      - Weekdays is a byte determining which days of the week the crawl will be show. (Overridden if Alwa
      - WebEnabled determines if this crawl should be displayed on Carousel's public web site. If not sup
      - Description is an optional text-based description for the crawl.
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:choice maxOccurs="1" minOccurs="0">
      <xs:element name="UpdateGUID" type="xs:string" />
      <xs:element name="SelectBulletinTags" type="ctBulletinTagList" />
    </xs:choice>
    <xs:element name="CrawlText" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:choice maxOccurs="1" minOccurs="1">
      <xs:element name="Zone" type="xs:string" />
      <xs:element name="ZoneSet" type="ctZoneSet" />
    </xs:choice>
    <xs:element name="AlwaysOn" type="xs:boolean" maxOccurs="1" minOccurs="1" />
    <xs:element name="DateTimeOn" type="xs:dateTime" maxOccurs="1" minOccurs="0" />
    <xs:element name="DateTimeOff" type="xs:dateTime" maxOccurs="1" minOccurs="0" />
    <xs:element name="CycleTimeOn" type="xs:time" maxOccurs="1" minOccurs="0" />
    <xs:element name="CycleTimeOff" type="xs:time" maxOccurs="1" minOccurs="0" />
    <xs:element name="Weekdays" type="xs:byte" maxOccurs="1" minOccurs="0" />
    <xs:element name="WebEnabled" type="xs:boolean" maxOccurs="1" minOccurs="0" />
    <xs:element name="Description" type="xs:string" maxOccurs="1" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctCreatePage">
  <xs:annotation>
    <xs:documentation>
      This command will create or update a page on the system.
      - UserName is a valid user in FrontDoor.
      - Password is UserName's password.
      - UpdateGUID is the optional identifier for the page you wish to update. If not specified, this wi
      - SelectBulletinTags when used instead of UpdateGUID will send this command to multiple bulletins
      - ZoneSet specifies the zones on which this bulletin should run. See the documentation for ctZoneSe
      - (Zone is depreciated. Use ZoneSet instead.)
      - AlwaysOn sets the page to always run until manually deleted or turned off.
      - DateTimeOn sets the date and time that the page will become active. (Overridden if AlwaysOn=true)
      - DateTimeOff sets the date and time that the page will deactivate. (Overridden if AlwaysOn=true)
      - CycleTimeOn sets the time that the page will start beign shown on any given day. (Overridden if A
      - CycleTimeOff sets the time that the page will stop being shown on any given day. (Overridden if A
      - DisplayDuration forces the page to be displayed for a given number of seconds. If not specified,
      - Weekdays is a byte determining which days of the week the page will be show. (Overridden if Alway
      - WebEnabled determines if this page should be displayed on Carousel's public web site. If not supp
      - Description is an optional text-based description for the page.
```

```
      - PageType is either "standard" or "alert".  Any active alert pages will override all active standa
      - PageTemplate determines which Carousel template this page should use. If you are updating a page,
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:choice maxOccurs="1" minOccurs="1">
      <xs:element name="Zone" type="xs:string" />
      <xs:element name="ZoneSet" type="ctZoneSet" />
    </xs:choice>
    <xs:element name="AlwaysOn" type="xs:boolean" maxOccurs="1" minOccurs="1" />
    <xs:element name="DateTimeOn" type="xs:dateTime" maxOccurs="1" minOccurs="0" />
    <xs:element name="DateTimeOff" type="xs:dateTime" maxOccurs="1" minOccurs="0" />
    <xs:element name="CycleTimeOn" type="xs:time" maxOccurs="1" minOccurs="0" />
    <xs:element name="CycleTimeOff" type="xs:time" maxOccurs="1" minOccurs="0" />
    <xs:element name="DisplayDuration" type="xs:int" maxOccurs="1" minOccurs="0" />
    <xs:element name="Weekdays" type="xs:byte" maxOccurs="1" minOccurs="0" />
    <xs:element name="WebEnabled" type="xs:boolean" maxOccurs="1" minOccurs="0" />
    <xs:element name="Description" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="PageType" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="PageTemplate" maxOccurs="1" minOccurs="1" type="ctTemplate" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctTemplate">
  <xs:annotation>
    <xs:documentation>
              A template is identified by the TemplateName, which corresponds to the list of templates
              in the Carousel Web Interface.  In a template, there can be several blocks of text.  If you
              want to enter text in a particular block, it must be listed here.
              You can set the text of 0 or more blocks, regardless of the number of blocks in the templat
              An attempt to set the text of a block that cannot be found inside the template will be igno
          </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="TemplateName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Block" type="ctBlock" minOccurs="0" maxOccurs="unbounded" />
    <xs:element name="PreviewImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="TinyImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="ThumbnailImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="FullImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctBlock">
  <xs:annotation>
    <xs:documentation>
              Each block inside a template has a unique Name.  To set the text in a block, provide
              the text in the Value attribute.
          </xs:documentation>
  </xs:annotation>
  <xs:attribute name="Name" type="xs:string" use="required" />
  <xs:attribute name="Value" type="xs:string" use="required" />
```

```
  <xs:attribute name="Type" type="xs:string" use="optional" />
</xs:complexType>
<xs:complexType name="ctZoneSet">
  <xs:annotation>
    <xs:documentation>
      A ZoneSet is used to represent a collection of Zones in the system.
      You can specify zones by their ID or Name, or you can specify a Zone Tag and all zones with that ta
      You can use as many ZoneID, ZoneName, and ZoneTag elements as you'd like, and you can specify them
    </xs:documentation>
  </xs:annotation>
  <xs:choice minOccurs="1" maxOccurs="unbounded">
    <xs:element name="ZoneID" type="xs:int" />
    <xs:element name="ZoneName" type="xs:string" />
    <xs:element name="ZoneTag" type="xs:string" />
  </xs:choice>
</xs:complexType>
<xs:complexType name="ctGetPlayerStatus">
  <xs:annotation>
    <xs:documentation>
      This command will return a ctPlayerStatusList containing an array of ctPlayerStatus elements repres
      All the registered players on the system will be returned. See the documentation for ctPlayerStatus
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" />
    <xs:element name="Password" type="xs:string" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctPlayerStatus">
  <xs:annotation>
    <xs:documentation>
      After calling GetPlayerStatus, you will receive a response containing array of ctPlayerStatus eleme
      - HostName: The DNS host name of the player
      - HostAddress: The IP address of the player
      - HardwareID: The Carousel HardwareID of the player
      - VersionStatus: Will either be "OK" if the player's version matches the Carousel server, or "ERROR
      - PlayerVersion: The version of the Carousel Player software installed on this player
      - CheckinStatus: Will either be "OK" if the player has checked in recently, or "ERROR" if this play
      - LastCheckinUTC: The time of the last checkin from this player, specified in UTC.
      - SubscribedChannelName: The name of the Carousel channel that this player is currently subscribed
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="HostName" type="xs:string" />
    <xs:element name="HostAddress" type="xs:string" />
    <xs:element name="HardwareID" type="xs:string" />
    <xs:element name="VersionStatus" type="xs:string" />
    <xs:element name="PlayerVersion" type="xs:string" />
    <xs:element name="CheckinStatus" type="xs:string" />
    <xs:element name="LastCheckinUTC" type="xs:dateTime" />
    <xs:element name="SubscribedChannelName" type="xs:string" />
  </xs:sequence>
```

```
</xs:complexType>
<xs:complexType name="ctPlayerStatusList">
  <xs:annotation>
    <xs:documentation>
      Simply a container for the ctPlayerStatus objects.
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="PlayerStatus" type="ctPlayerStatus" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctBulletinTagList">
  <xs:annotation>
    <xs:documentation>
      A list of Tag elements which should contain bulletin tags.  Bulletins matching all of the specifie
      - Tag: The name of a bulletin tag.
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="Tag" type="xs:string" maxOccurs="unbounded" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctUpdatePage">
  <xs:annotation>
    <xs:documentation>
      This command will create or update a page on the system.
      - UserName is a valid user in FrontDoor.
      - Password is UserName's password.
      - UpdateGUID is the optional identifier for the page you wish to update. If not specified, this wi
      - SelectBulletinTags when used instead of UpdateGUID will send this command to multiple bulletins r
      - ZoneSet specifies the zones on which this bulletin should run. See the documentation for ctZoneSe
      - (Zone is depreciated. Use ZoneSet instead.)
      - AlwaysOn sets the page to always run until manually deleted or turned off.
      - DateTimeOn sets the date and time that the page will become active. (Overridden if AlwaysOn=true)
      - DateTimeOff sets the date and time that the page will deactivate. (Overridden if AlwaysOn=true)
      - CycleTimeOn sets the time that the page will start beign shown on any given day. (Overridden if A
      - CycleTimeOff sets the time that the page will stop being shown on any given day. (Overridden if A
      - DisplayDuration forces the page to be displayed for a given number of seconds. If not specified,
      - Weekdays is a byte determining which days of the week the page will be show. (Overridden if Alway
      - WebEnabled determines if this page should be displayed on Carousel's public web site. If not supp
      - Description is an optional text-based description for the page.
      - PageType is either "standard" or "alert".  Any active alert pages will override all active standa
      - PageTemplate determines which Carousel template this page should use. If you are updating a page,
    </xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:choice maxOccurs="1" minOccurs="1">
      <xs:element name="UpdateGUID" type="xs:string" />
      <xs:element name="SelectBulletinTags" type="ctBulletinTagList" />
    </xs:choice>
```

```
    <xs:element name="AlwaysOn" type="xs:boolean" maxOccurs="1" minOccurs="0" />
    <xs:element name="DateTimeOn" type="xs:dateTime" maxOccurs="1" minOccurs="0" />
    <xs:element name="DateTimeOff" type="xs:dateTime" maxOccurs="1" minOccurs="0" />
    <xs:element name="CycleTimeOn" type="xs:time" maxOccurs="1" minOccurs="0" />
    <xs:element name="CycleTimeOff" type="xs:time" maxOccurs="1" minOccurs="0" />
    <xs:element name="DisplayDuration" type="xs:int" maxOccurs="1" minOccurs="0" />
    <xs:element name="Weekdays" type="xs:byte" maxOccurs="1" minOccurs="0" />
    <xs:element name="WebEnabled" type="xs:boolean" maxOccurs="1" minOccurs="0" />
    <xs:element name="Description" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="PageType" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="Block" maxOccurs="unbounded" minOccurs="0" type="ctBlock" />
    <xs:element name="ExclusiveAlertOn" type="xs:boolean" maxOccurs="1" minOccurs="0" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctGetZoneList">
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctGetTemplateList">
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="ZoneID" type="xs:int" maxOccurs="1" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctZone">
  <xs:sequence>
    <xs:element name="ZoneID" type="xs:int" />
    <xs:element name="ZoneName" type="xs:string" />
    <xs:element name="ZoneType" type="xs:string" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctGetBulletinList">
  <xs:sequence>
    <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="ZoneID" type="xs:int" maxOccurs="1" minOccurs="1" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="ctBulletin">
  <xs:sequence>
    <xs:element name="Description" type="xs:string" maxOccurs="1" minOccurs="1" />
    <xs:element name="CrawlText" type="xs:string" maxOccurs="1" minOccurs="0" />
    <xs:element name="Block" type="ctBlock" minOccurs="0" maxOccurs="unbounded" />
    <xs:element name="AlwaysOn" type="xs:boolean" maxOccurs="1" minOccurs="1" />
    <xs:element name="DateTimeOn" type="xs:dateTime" maxOccurs="1" minOccurs="1" />
    <xs:element name="DateTimeOff" type="xs:dateTime" maxOccurs="1" minOccurs="1" />
    <xs:element name="CycleTimeOn" type="xs:time" maxOccurs="1" minOccurs="1" />
    <xs:element name="CycleTimeOff" type="xs:time" minOccurs="1" maxOccurs="1" />
    <xs:element name="Weekdays" type="xs:byte" maxOccurs="1" minOccurs="1" />
```

```
      <xs:element name="WebEnabled" type="xs:boolean" maxOccurs="1" minOccurs="1" />
      <xs:element name="PageType" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="DisplayDuration" type="xs:int" maxOccurs="1" minOccurs="1" />
      <xs:element name="PreviewImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="TinyImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="ThumbnailImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="FullImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="GUID" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="ObjectType" type="xs:string" />
      <xs:element name="PageStatus" type="xs:string" maxOccurs="1" minOccurs="1" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ctGetPictureList">
    <xs:sequence>
      <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="ZoneID" type="xs:int" maxOccurs="1" minOccurs="1" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ctGetVideoList">
    <xs:sequence>
      <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="ZoneID" type="xs:int" maxOccurs="1" minOccurs="1" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ctMedia">
    <xs:sequence>
      <xs:element name="Name" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Value" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="PreviewImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="TinyImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="ThumbnailImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
      <xs:element name="FullImagePath" type="xs:string" maxOccurs="1" minOccurs="0" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ctArchivePage">
    <xs:sequence>
      <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="GUID" type="xs:string" maxOccurs="1" minOccurs="1" />
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ctSetPageStatus">
    <xs:sequence>
      <xs:element name="UserName" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Password" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="GUID" type="xs:string" maxOccurs="1" minOccurs="1" />
      <xs:element name="Status" type="xs:int" maxOccurs="1" minOccurs="1" />
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

22 Clone Tool

The Clone Tool is a simple, yet powerful application used to replicate and implement a channel. The basic function of this tool allows you to export and import a channel out of or into Carousel, including all of the zone settings and media associated with the channel. The end product is an exact duplicate of the original channel, hence the term Clone Tool.

There are two common scenarios when the Clone Tool comes into play. The first scenario being anytime that you want to duplicate an existing channel, perhaps after adding a new channel to your Carousel configuration. Imagine that the new channel will have the same layout and basic content as the initial channel, with minor adjustments making it unique to its purpose. The second scenario being after you purchase a Channel Design Package from Tightrope Creative[1].

22.1 Using the Clone Tool

Before we start using the Clone Tool we need to verify the following:

- You must be running Carousel version 5.2.1 or above. The Clone Tool was introduced in version 5.2.1, prior versions do not contain this functionality.
- Every channel in Carousel must have a license. If you are not replacing an existing channel, an additional channel license is required. To verify the number of available channel licenses, select the **Configure** button from the **Main Menu** of Carousel, then click on **Channels**. The number of available channel licenses will display under the channel list[2].
- As a precaution we recommend that you back up your database before using the Clone Tool. For instructions on backing up your Carousel database please reference *FrontDoor: The Manual*.
- Lastly, you will need remote or physical access to your server and an internet connection.

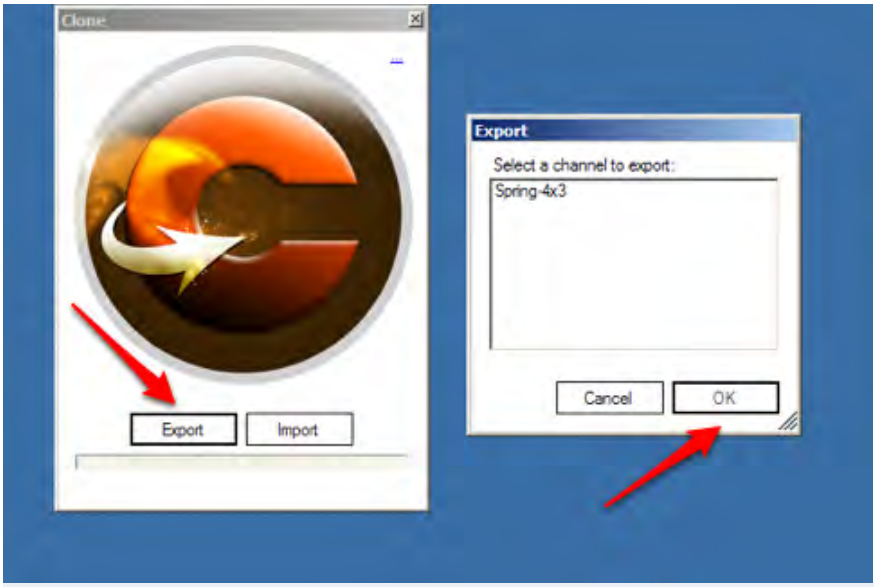
If there are no additional channel licenses available, you will be asked if you would like to overwrite a channel. If you choose to overwrite the original channel, the setup will be replaced with the new setup, however, your zones, bulletins, and media will remain intact. If you have an additional channel license, the Clone Tool will add the channel without overwriting anything.

22.1.1 Exporting a Channel

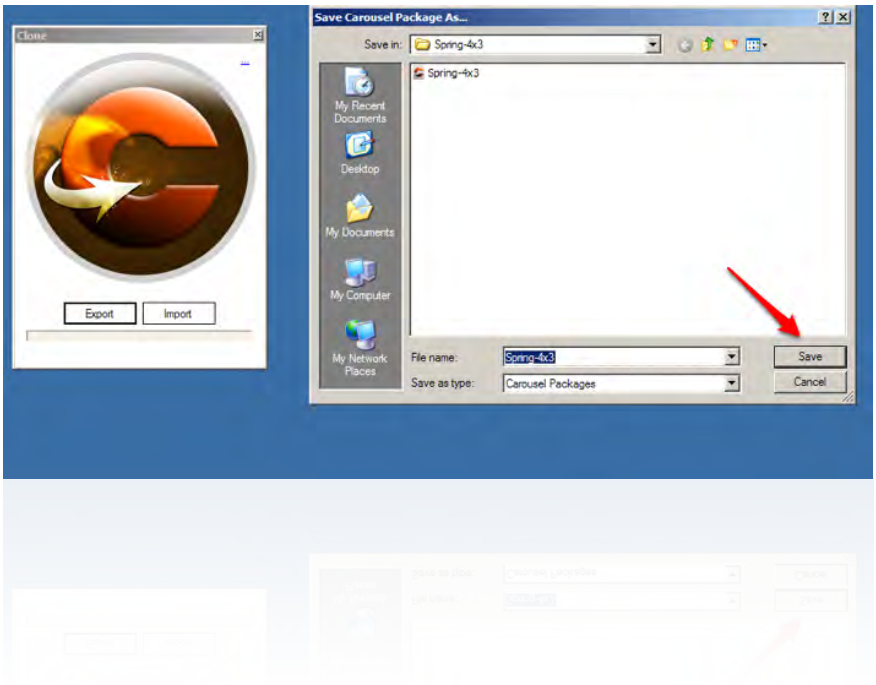
Step 1: From the *Tools* directory on the Carousel server, double click on **Clone.exe** to launch the application.

[1] For more information about Tightrope Creative, please visit our website: http://store.trms.com
[2] If necessary, additional channel licenses should be purchased through your dealer.

Step 2: From the Clone Tool splash screen select **Export**. Select a channel you would like to export and click **OK**.



Step 3: Specify a location for it to be saved.

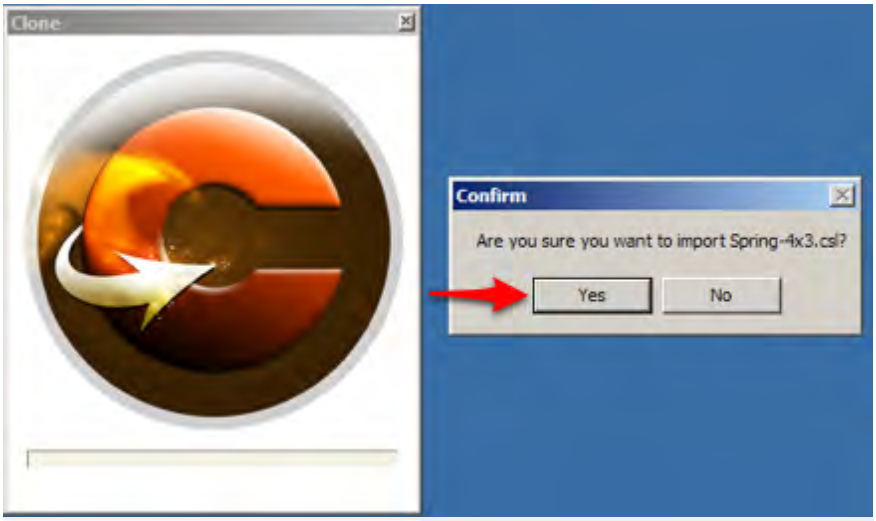


Step 4: The Clone Tool will report its status while it exports. The tool will provide you with a <*Your Channel Name*>.csl file[3] in the location that you specified.

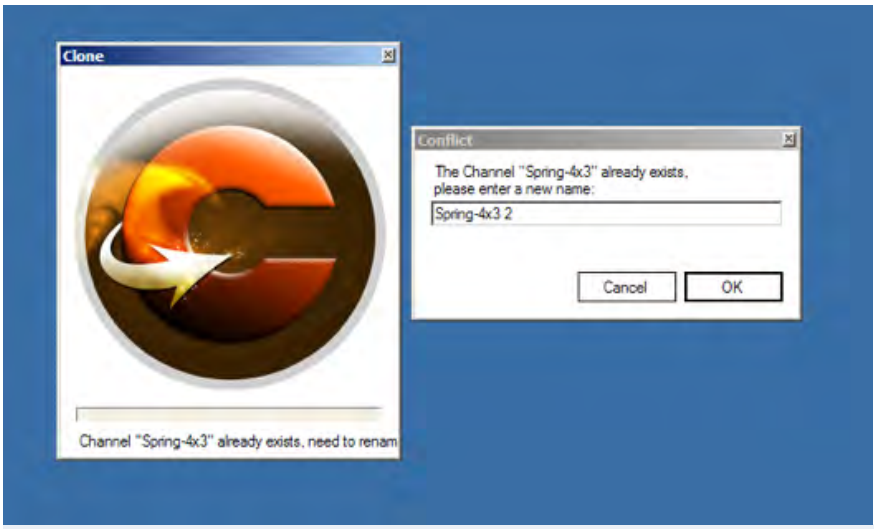
22.1.2 Importing a Channel

Step 1: Take the <*Your Channel Name*>.csl file that you exported from Carousel or downloaded from Tightrope Creative and copy it to the desktop of the Carousel server to which you are importing the channel. Double click on the the <*Your Channel Name*>.csl to launch the tool. Click on the **Yes** button to confirm the import. If the channel you are importing is unique to the system, the Clone Tool will close once completed and the your channel will be in the system. If the channel that you're importing already exists in your system and you are simply duplicating the channel, please move on to Step 2.

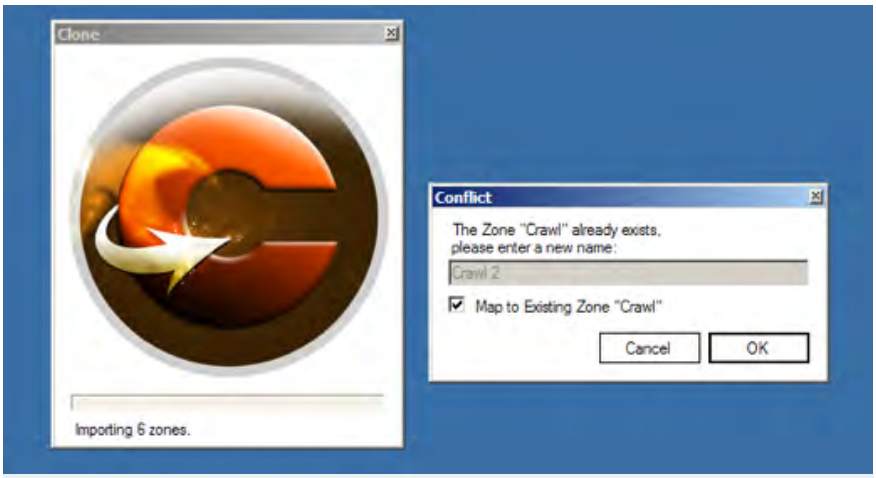
[3] Channels larger than 4 gigabytes will have a .csxl extension and cannot be imported into Carousel versions 5.2.4 or below.



Step 2: When duplicating a channel, Clone will ask you to rename the channel. By default it will append a number to the name if it is the same. Rename the channel and click **OK**.



Step 3: Now you are asked to rename the zones, giving you control over how the channel is setup. If you're planning on sharing the same content on both the original channel and the duplicate channel, you should map the duplicate channel's zones to the original zones, which is the tool's default. The benefit being that bulletins would only have to be created in one zone, which would serve multiple channels. Note that each zone is independent so if you need a zone unique to your duplicate channel, simply uncheck **Map to Existing Zone** for that zone and give it a new name. If you want to make a true copy of the channel, including all of the zones, uncheck **Map to Existing Zone** for each zone, enter a new unique name for each zone and click **OK**.



Step 4: The Clone Tool will report its status while it imports. Once finished, depending on how the tool was launched it will close or report the process complete, signaling a successful import.

Visit our help page for detailed instructions and video tutorials at http://store.trms.com/pages/help.

22.2 Advanced Settings

If you're running Carousel on an enterprise system provided by your organization, there is a chance that Carousel has been configured to use an advanced configuration such as a remote SQL server or media directory. Further information on enterprise setup and configuration can be found in appendix J on page 277. We'll go over the possible scenarios below.

22.2.1 Remote SQL servers

To interface with a remote SQL server, you'll need to edit the Clone Tool's config file. If we don't, the Clone Tool won't know how to contact the SQL server database!

Step 1: Modify **D:\TRMS\Tools\Clone.exe.config** using your favorite text editor. You need to add the login connection string in the <*connectionStrings*> area.

Example: Connection string login into a remote server with SQL authentication might be:

```
<add name="FrontDoorConnectionString" connectionString="Data Source=MyServer;
      UserID=MyUser; Password=MyPwd; Initial Catalog=FrontDoor50;" />
<add name="CarouselConnectionString" connectionString="Data Source=MyServer;
      UserID=MyUser; Password=MyPwd; Initial Catalog=Carousel50;" />
```

Be sure to set both of the connection strings! FrontDoor and Carousel each have their own line, and need to be updated.

22.2.2 Remote media storage

To set your remote media storage location, click on the . . . icon located in the top-right corner of the Clone Tool window. In this window you're also given the option for the Clone Tool to set folder and file permissions at Launch. Disabling this can increase the speed of the Clone Tool for large installations, but you must ensure that folder permissions are set correctly.

22.2.3 Command line arguments

The Clone Tool will accept the following command line arguments:

Export a channel to a file:

```
clone.exe export <Channel Name> <Path>...
```

Import a channel from a file:

```
clone.exe <Path>... [/force]
```

Display the help message

```
clone.exe help
```

V. Appendix

"I have spent my life learning incredible amounts of disparate, disconnected, obscure, useless pieces of knowledge, and they have turned out to be, almost all of them, extremely useful."

—Chandler Burr

Appendix A Installer's Checklist

If you are installing Carousel for your self or as a paid systems integrator, it will be helpful to use this chapter as a starting point for a checklist. When you turn the system over to the users and administrators of Carousel, you will want to be sure everything is working as expected and that they feel like they are ready to go!

Use this checklist as a starting point for something more specific for your installation. If you do decide to use it as it is, that's why we're starting it on the next page. That way you can print the checklist off separately.

A.1 Carousel Checklist

A.1.1 Preperation

- [ ] Do you have everything that was ordered?
  - [ ] Do you have all of the Carousel equipment from Tightrope?
  - [ ] Do you have all of the required license keys? (Usually only needed for software only installations, such as Enterprise installs.)
  - [ ] Do you have all of the required mounting hardware for Carousel, including equipment rack accessories, behind-the-monitor mounting brackets, etc?
- [ ] Do you know where all of the monitors are going?
- [ ] Do you know which monitors are going where and how they will be oriented?
- [ ] Do you know how your are getting video/audio to each display and do you have all of the required equipment for that?
- [ ] Do you have everything that you need from IT?
  - [ ] A static IP address for your Solo/Server
  - [ ] Any required open ports to or from the internet. See section 5.2.1 on page 45, *Configuring the Network Settings*.
  - [ ] Any domain permissions, policies or virus software that needs to be installed on the players or server.
- [ ] Do you know the channel names for each of their channels and where each channel is being loaded?
- [ ] Did they purchase andy Tightrope Creative Channels (store.trms.com)?
  - [ ] Have they decided which ones they are?
  - [ ] Have you downloaded them?

A.1.2 Setup

- [ ] All Carousel equipment is properly mounted, provided with power and KVM access where required.
- [ ] All monitors are safely mounted.
- [ ] All video distribution hardware is properly connected to the players and their monitors.
- [ ] Any television control hardware that may be required has been installed. (serial cables, IR blocks, etc)
- [ ] Servers have been configured to operate on the network.
  - [ ] They have been joined to the domain, if required
  - [ ] The Carousel server has a static IP address.
  - [ ] Any Carousel Players have access to the Carousel Server. See port information in section 5.2.1 on page 45, *Configuring the Network Settings*.
  - [ ] Carousel has access to the outside internet, if required. See port information in section 5.2.1.
- [ ] Carousel's Server software is configured correctly.
  - [ ] It has the latest version.
  - [ ] It is configured with the correct licensing, including any plug-ins and all required channel licensing.
  - [ ] All purchased Tightrope Creative Channels have been added and installed. See the documentation that came with the Creative Channel.
  - [ ] All purchased channels have been added to Carousel and named correctly.
- [ ] All Carousel Players have been configured correctly.
  - [ ] All Players are on the latest version.

- [ ] All Players are pointing to the correct channel on the Carousel Server. (chapter 8 on page 71, *Configuring Players*)
- [ ] Any TV Input devices are installed and configured correctly in the Carousel Display Engine. (section 8.2.4 on page 75, *Live Video Input*)
- [ ] All Players have their resolution and screen aspect ratio set correctly and optimized for the display that is plugged into it. (section 8.2.3 on page 74, *Display Settings*)

A.1.3 Verify Display Quality and Content

- [ ] A basic zone setup has been created for each channel *or* Tightrope Creative Channels have been loaded on to each channel.
- [ ] All channels are running content and you can see them on each monitor.
- [ ] Each monitor is precisely showing the Carousel output, with no black borders on any side of any monitor.
- [ ] The picture settings are adjusted correctly and the monitors look attractive.
- [ ] Each player is showing the correct bulletins.

A.1.4 Verify Carousel Communication

- [ ] You are able to access Carousel from all areas of the facility where access is expected.
- [ ] Each player is showing the correct bulletins.
- [ ] You are able to create a bulletin on a zone on each channel and verify that it appears.
- [ ] You are able to delete a bulletin on a zone on each channel and verify that it disappears.
- [ ] You are able to create full-screen alert bulletins for each channel that has a full screen alert zone assigned to it.
- [ ] Full screen alert zones appear in a timely fashion (under 10 seconds) on each channel.

- [ ] Full screen alert zones disappear, in a timely fashion, when you disable them, for each channel.

A.1.5 Clean Up Testing

- [ ] You delete any test bulletins that you made.

If they did not purchase Tightrope Creative channels or you otherwise created fake zones and/or channels to test the system:

> Only delete fake information. If there is customer supplied information on these systems, skip the following steps, as required.

- [ ] You removed all of the zones off of the system.
- [ ] You removed any media that you uploaded into the system
- [ ] You deleted any channels in Carousel. (Only within Carousel. Do not remove any licenses from FrontDoor.)
- [ ] The server and players do not have any USB keys, keyboards or mice that were used for software updates and installation still attached to them.
- [ ] The server and player do not have any left over icons, zip files or installers on their desktops that were a part of the any software updates or configuration.

A.1.6 Communicate With the Customer

- [ ] The customer knows which channels are displaying on which monitors.
- [ ] The customer knows the address of the server and of the players, if the players do not have dynamic addresses.
- [ ] The customer knows the user name and password of the system.
- [ ] The customer is properly registered with Tightrope Media Systems for support and warranty purposes.
- [ ] The customer has a copy of the Carousel Manual and any other supplied documentation
- [ ] The customer knows when training is scheduled.
- [ ] The customer is satisfied with the installation and has no further questions.

Appendix B Carousel Menu Tree

Below is an outline of the Carousel menu system.

The electronic version of this manual has hyperlinked reference points for quick retrieval.

B.1 Carousel Menu Structure

- Configure (section 7.1 on page 59, *Configuration Menu*)
  - Channels (section 7.3 on page 61, *Define Your Channels*)
    - *<Channel Name>*
      - Channel Setup (section 7.3.1 on page 62, *The Channel Setup Form*)
      - Channel Layout (section 7.3.2 on page 64, *The Channel Layout Form*)
      - Crawl (section 7.3.3 on page 65, *The Crawl Properties Form*)
      - Date and Time (section 7.3.4 on page 66, *The Date and Time Properties Form*)
      - Background Audio (section 7.3.5 on page 68, *The Background Audio Form*)
      - Background Audio Playlist (section 7.3.6 on page 68, *Adding Background Audio to Carousel*)
  - Zones (section 7.2 on page 59, *Create Your Zones*)
    - *<Zone Name>*
  - Players (section 8.3 on page 75, *Monitoring Your Players*)
    - Player Status (section 8.3.1 on page 75, *Player Status*)
    - Alert Settings (section 8.3.3 on page 77, *Player Alerts*)
  - System (section 11.2 on page 96, *System Configuration Menu*)
    - Zone Selection Style (section 11.2.1 on page 96, *Zone Selection Style*)
    - Administrator Email Setup (section 11.2.2 on page 96, *Administrator Email Setup*)
    - Zone Tags (section 11.2.3 on page 97, *Zone Tags*)
    - System Information (section 11.2.6 on page 98, *System Information*)
- New Bulletin (chapter 13 on page 103, *Making Bulletins*)
  - Standard (chapter 13 on page 103, *Making Bulletins*)
  - Uploaded (chapter 16 on page 119, *Uploading Bulletins*)
    - Upload an image file (section 16.1 on page 119, *Uploading Video and Pictures*)
    - Upload a flash file (section 16.2 on page 121, *Uploading Flash*)
    - Upload a video file (section 16.1 on page 119, *Uploading Video and Pictures*)
    - Upload a PowerPoint file (section 16.3 on page 124, *Uploading PowerPoint*)

        - Upload a bulletin package (section 16.4 on page 124, *Uploading Bulletin Packages*)
    - Dynamic (chapter 17 on page 125, *Dynamic Bulletins*)
        - Clock bulletin (section 17.1 on page 125, *The Clock Bulletins*)
        - Weather bulletin (section 17.2 on page 129, *The Weather Bulletins*)
        - CableDisplay bulletin (section 17.4 on page 134, *Cable Display Bulletins*)
        - RSS bulletin (section 17.5 on page 140, *The RSS Bulletins*)
        - Event Schedule bulletin (section 17.9 on page 150, *The Event Schedule Bulletins*)
        - Live Video Feed (section 17.12 on page 159, *The Live Video Input Bulletins*)
        - Interactive Bulletin (section 17.13 on page 161, *Interactive Bulletins*)

- New Alert Bulletin (chapter 15 on page 117, *Alert and Full Alert Bulletins*)
    - Standard
    - Uploaded
        - Upload an image file (section 16.1 on page 119, *Uploading Video and Pictures*)
        - Upload a flash file (section 16.2 on page 121, *Uploading Flash*)
        - Upload a video file (section 16.1 on page 119, *Uploading Video and Pictures*)
        - Upload a PowerPoint file (section 16.3 on page 124, *Uploading PowerPoint*)
        - Upload a bulletin package (section 16.4 on page 124, *Uploading Bulletin Packages*)
    - Dynamic
        - Clock bulletin (section 17.1 on page 125, *The Clock Bulletins*)
        - Weather bulletin (section 17.2 on page 129, *The Weather Bulletins*)
        - CableDisplay bulletin (section 17.4 on page 134, *Cable Display Bulletins*)
        - RSS bulletin (section 17.5 on page 140, *The RSS Bulletins*)
        - Event Schedule bulletin (section 17.9 on page 150, *The Event Schedule Bulletins*)
        - Live Video Feed (section 17.12 on page 159, *The Live Video Input Bulletins*)
        - Interactive Bulletin (section 17.13 on page 161, *Interactive Bulletins*)

- Manage Bulletins (chapter 18 on page 167, *Managing Bulletins*)
    - My Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Active Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Active Repeating Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Alert Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Saved Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Stale Bulletins (section 18.1 on page 167, *Bulletin Lists*)
    - All Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Active Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Active Repeating Bulletins (section 18.1 on page 167, *Bulletin Lists*)
        - Alert Bulletins (section 18.1 on page 167, *Bulletin Lists*)

  - Waiting Bulletins (section 18.3 on page 173, *Approving Bulletins*)
  - Housekeeping (section 18.4 on page 174, *Housekeeping*)
    * Delete all stale bulletins (section 18.4 on page 174, *Housekeeping*)
    * Delete all saved bulletins (section 18.4 on page 174, *Housekeeping*)
    * Delete all waiting bulletins
      // (section 18.4 on page 174, *Housekeeping*)
    * Delete all active bulletins (section 18.4 on page 174, *Housekeeping*)
    * Delete a user's bulletins (section 18.4 on page 174, *Housekeeping*)
  - Slide Show (section 18.6 on page 177, *Slide Show*)

- Media (chapter 19 on page 179, *Managing Media*)
  - My (section 19.1 on page 180, *My and Zone Tabs*)
    * Backgrounds (chapter 19 on page 179, *Managing Media*)
    * Pictures (chapter 19 on page 179, *Managing Media*)
    * Video Clips (chapter 19 on page 179, *Managing Media*)
    * Sounds (chapter 19 on page 179, *Managing Media*)
    * Templates (section 19.7 on page 186, *The Template Editor*)
    * Media Tags (section 19.8 on page 201, *Media Tags*)
  - Zone (section 19.1 on page 180, *My and Zone Tabs*)
    * Backgrounds (chapter 19 on page 179, *Managing Media*)
    * Pictures (chapter 19 on page 179, *Managing Media*)
    * Video Clips (chapter 19 on page 179, *Managing Media*)
    * Sounds (chapter 19 on page 179, *Managing Media*)
    * Templates (section 19.7 on page 186, *The Template Editor*)
    * Media Tags (section 19.8 on page 201, *Media Tags*)
    * Add Media Package (chapter 19 on page 179, *Managing Media*)

- Event Schedule (section 17.9 on page 150, *The Event Schedule Bulletins*)
- Extras (chapter 20 on page 205, *Extras*)
- Zone Settings (chapter 10 on page 91, *The Zone Settings Menu*)
  - Network (section 10.1 on page 91, *The Network Tab*)
    * Email setup (section 10.1.1 on page 91, *Email Settings*)
    * Other Zone Outputs (section 10.1.2 on page 92, *Other Outputs*)
  - Lists (section 10.2 on page 92, *Lists*)
    * Excluded Fonts (section 10.2 on page 92, *Lists*)
    * Transitions (section 10.2 on page 92, *Lists*)
    * RSS Excluded Words (section 10.2 on page 92, *Lists*)
  - Display Engine (section 10.3 on page 92, *Display Engine*)
    * Bulletin Pacing (section 10.3.1 on page 92, *Bulletin Pacing*)
    * Default Transition (section 10.3.2 on page 92, *Default Transition*)
    * Bumper Graphic (section 10.3.3 on page 93, *Bumper Graphic*

Appendix C Web Page Snapshots

Carousel's Web Page Snapshot feature allows you to capture a portion of a web page and display it inside a Web Picture block within a bulletin. Here's how it works:

Step 1: Select a new bulletin that has a "Web Picture" block in it[1].

Step 2: Click "Select webpage" next to the Web Picture block (figure C.1).

Step 3: Enter the URL of a web site you'd like to capture (figure C.3 on the following page). If you need to delay the snapshot by a few seconds to allow time for dynamic content to load, enter the number of seconds in the available box.

Step 4: Crop the page as needed (figure C.4 on the next page).

Step 5: Click the finish button at the bottom and you are done! See figure C.5 on page 249 for the final output.

The web snapshot will update in Carousel every 15 minutes, so the data on that page will always be up to date.

Due to their complexity, Web Page Snapshots may not always work when the Carousel system is behind a proxy server. Tightrope Media Systems cannot guarantee that Web Page Snapshots will work behind a proxy server.

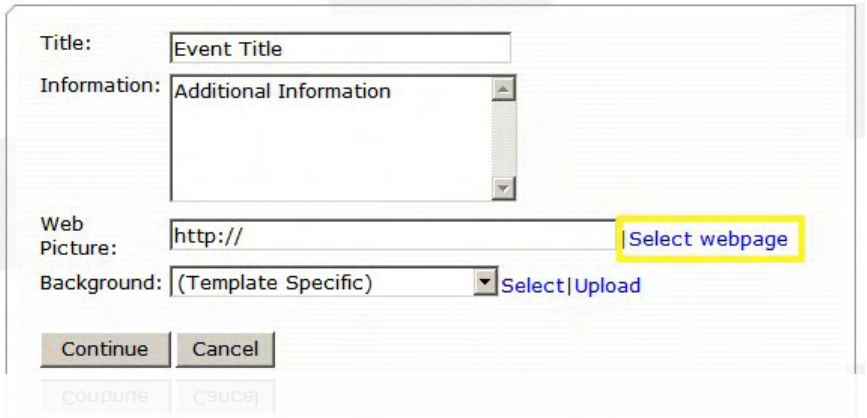


FIGURE C.1: Selecting a template with a Web Picture block

Potential uses:

- Grab a snapshot of a stock chart from a financial web site.
- Display manufacturing output data from an intranet report page.
- Highlight sales forcasting information from your company sales site.

[1] For more information on Web Pictures, see section 19.7.2 on page 187.

FIGURE C.2: A bulletin with a Web Picture block

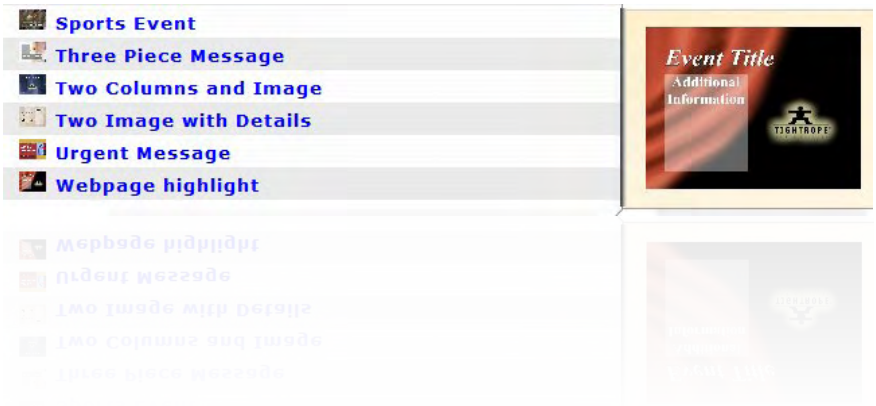


FIGURE C.3: Enter the URL of the page you'd like to include in the bulletin, and enter a delay if needed

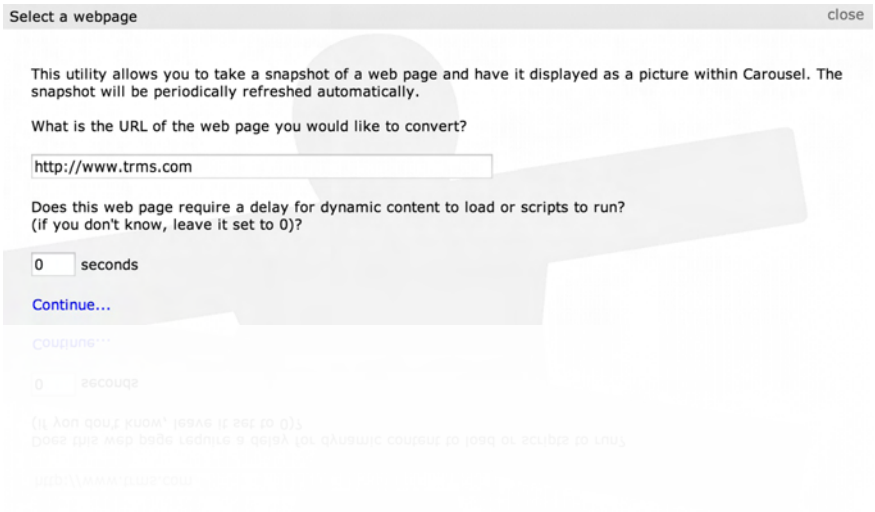

Select a webpage
close
This utility allows you to take a snapshot of a web page and have it displayed as a picture within Carousel. The snapshot will be periodically refreshed automatically.
What is the URL of the web page you would like to convert?
http://www.trms.com
Does this web page require a delay for dynamic content to load or scripts to run?
(if you don't know, leave it set to 0)?
0
seconds
Continue...

FIGURE C.4: Crop the page as needed

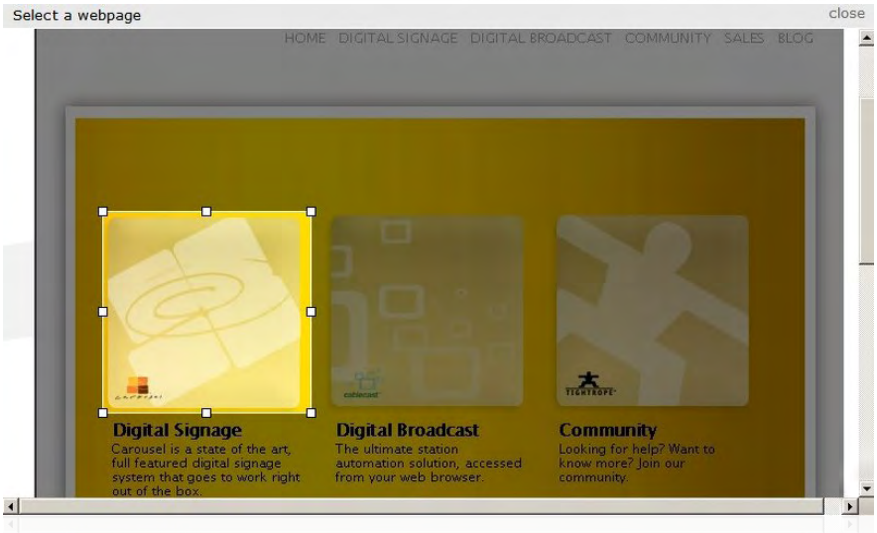
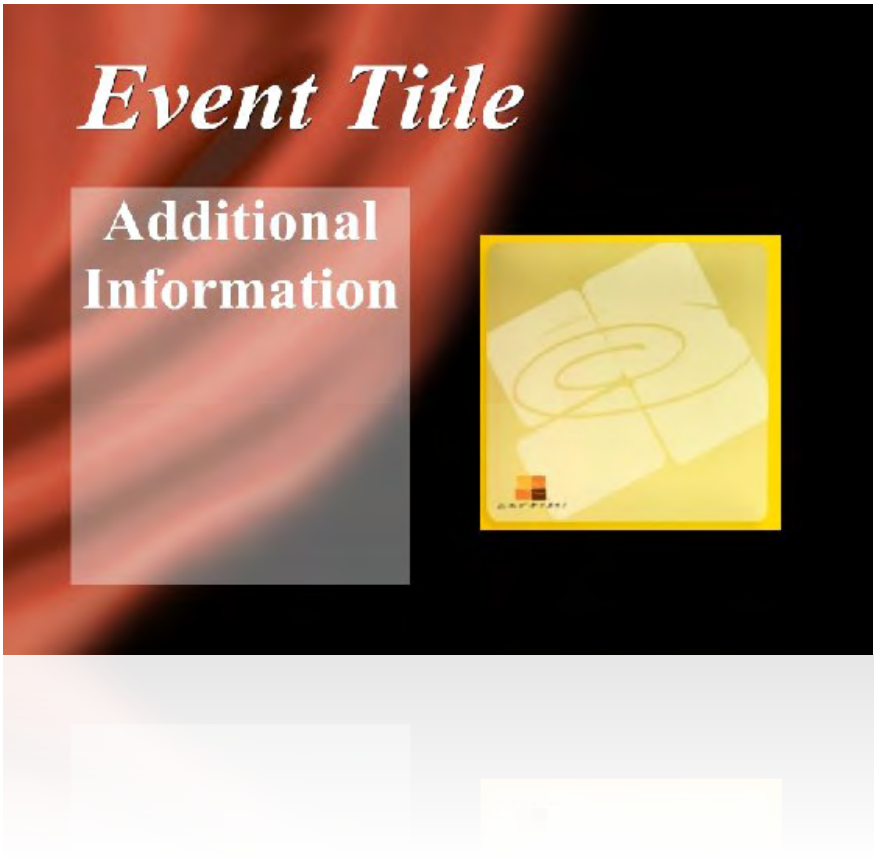

Select a webpage
close
HOME DIGITAL SIGNAGE DIGITAL BROADCAST COMMUNITY SALES BLOG
Digital Signage
Carousel is a state of the art, full featured digital signage system that goes to work right out of the box.
Digital Broadcast
The ultimate station automation solution, accessed from your web browser.
Community
Looking for help? Want to know more? Join our community.

FIGURE C.5: The final result



Appendix D Sample Carousel Templates

Below are the default templates provided with new systems. Please see the quick-start guide for information regarding uploading and installing these on your system.

Education

Event Invitation 1

Event Invitation 2

Event Message

Event with Image

Four Piece Message

Important Message

Industrial

Mellow Yello

Music

Off Broadway with Image

Office Bulletin

Olive

Recipe card with image

Simple Message with Image

Simple Message with Title

Simple Message

Sports Event

Three Piece Message

Two Columns and Image

Two Image with Details

Urgent Message

A Title and Body

Calendar of Events

Celebrate

Classic 2

Classic 3

Classic

Column and Image with Title

Contact Information

Detailed Message

Appendix E Limited Template Editor

If you are using an older web browser, such as Internet Explorer Version 6, Carousel will automatically provide you with the older-style template editor. This template editor is much more limiting and cumbersome to use, so we do recommend using a more modern web browser, if that is possible.

What follows is a walkthrough of the classic template editor in Carousel.

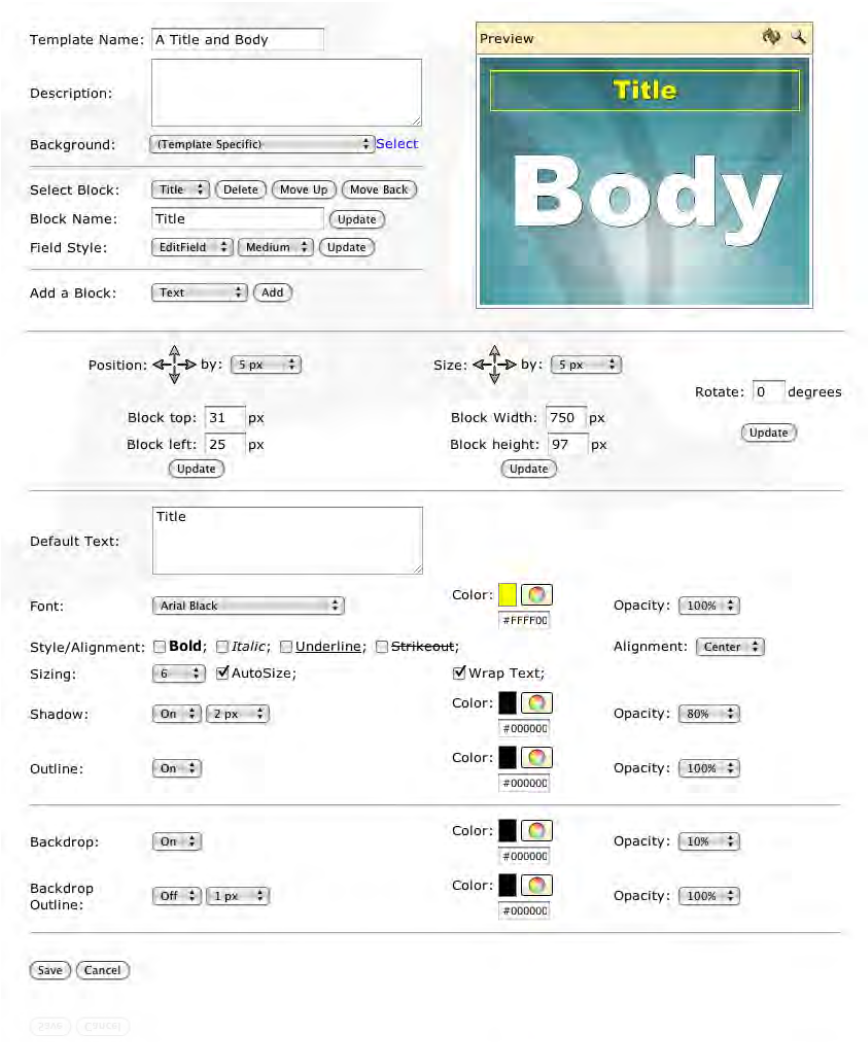
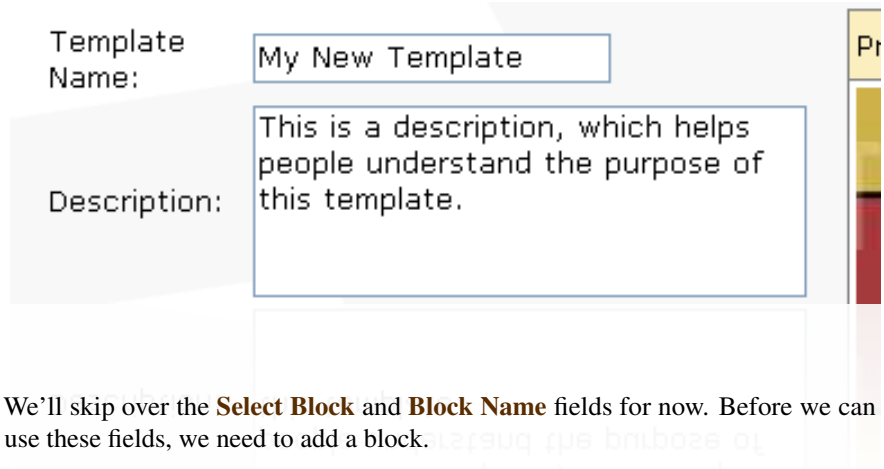


FIGURE E.1: The Template Editor Form

Step 1: The first order of business will be to name the template and give it a description. The description helps the user determine the original purpose of the template.

Step 2: Next, you select the default background for this template in the **Background** pop-down list. A user may change this at creation time, but they will see this selection first.

FIGURE E.2: Naming a Template


Template Name:
My New Template
Description:
This is a description, which helps people understand the purpose of this template.

We'll skip over the **Select Block** and **Block Name** fields for now. Before we can use these fields, we need to add a block.

Step 3: In the **Add a Block** pop-down, select the type of block that you would like to create and click the **Add** button.

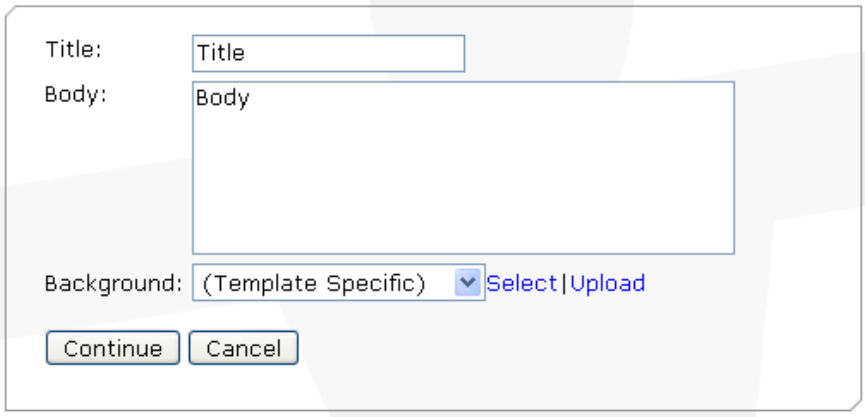
Step 4: Once you create a block, it will be the selected block, shown in the **Select Block** field. Rename this field to something descriptive, like "`Title`" or "`Message Body`" then click the **Update** button.

Step 5: If you've added a text item, you will notice a pair of **Field Style** pop-down lists. The first list denotes the *style* of the entry form that the user will use to enter text. An *edit field* is a single line of text while a *text area* is a multiple line text box. Choose a size that matches the purpose of the block.

The second pop-down next to the **Field Style** label is used to set the size of the field. This does not limit the user from entering more or less text into the field, it only acts to suggest the amount of text by limiting expanding viewable area of text. You can see an example of this in figure E.3.

When you are finished selecting the block's text field size, click the **Update** button to save your changes.

FIGURE E.3: In this example, you can see that the **Title** field was set to **EditField** and **Small**. The **Body** field was set to **TextArea** and **Large**.



Step 6: If you've added a video, picture or web picture block, then you'll see a selection section appear below the preview window. This is where you can select the default file or location (in the case of web pictures) that will be selected when the user first loads this template.

For picture blocks, you'll also find the **Opacity** pop-down, which defaults to **100%**. Adjust this as desired.

Step 7: For all blocks, the **Position** and **Size** tools, figure E.4. You may use the arrow icons to position and size the block.

FIGURE E.4: The Position and Size Tools

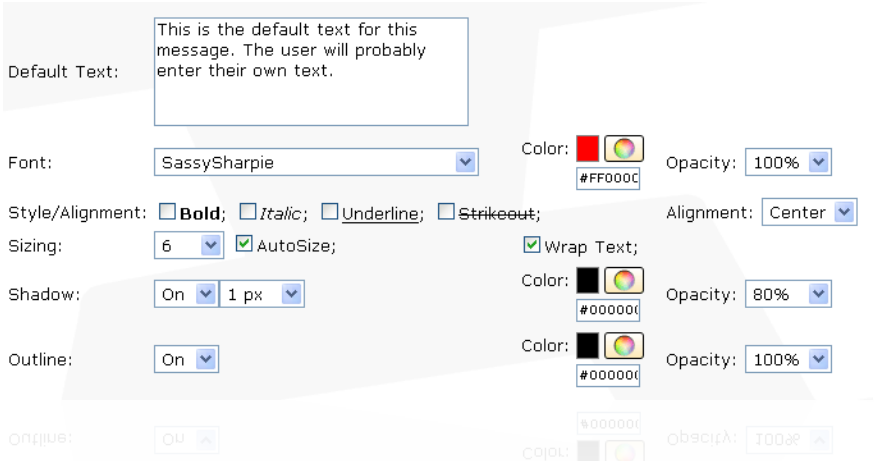
The **Block Top** and **Block Left** fields show the current position of the block, as seen from the upper left corner of the block. The **Block Width** and **Block Height** fields are self explanatory. Changing them will change the dimensions of the block, holding the upper left corner in its place while the lower right corner moves to resize to the new settings.

When you use the **Size** arrow icons Carousel will resize from the lower right. That means that to heighten a block, you actually need to select the *down* arrow. To widen it, click the *left* arrow.

This is probably the most important tip of the Carousel manual: When you are trying to resize or position a text or picture block, turn on the outline of the block, even if you do not want an outline in the final template. This will show you the outer bounds of the block and save you from endless hours of guessing. Of course, when you're finished, you may turn the outline off if it is not a part of the design.

Step 8: For text blocks, an entire section devoted to the style of the text will appear. At the top, you will see a **Default Text** box. This will initially be set to the name of the block, but you may change it to a more suitable entry.

FIGURE E.5: Text Editing Properties



Everything else in this area of the form is devoted to the style of the text and is organized in rows by **Font**, **Syle/Alighment**, **Sizing**, **Shadow** and **Outline**. Everything should be pretty straight forward, with a couple of notable features.

First, Carousel can optionally size a text block based on the block's size and the

amount of text. When **Auto Size** is selected, Carousel ignores the value in the **Sizing** pop-down list and resizes the text to fill the block.

Second, if you do not check the **Wrap Text** checkbox, Carousel will allow text to run off of the side of a block, unless you have **Auto Size** selected. In that case, your text will get very small very quickly. Make sure that the field that you are defining is going only have text that will fit.

Step 9: The last section of the Template Editor form is devoted to the backdrop and outline.

As we mentioned before, it is useful to turn either one of these on while you are getting the block's size and position nailed down. In that role, they can act as visual placement guides.

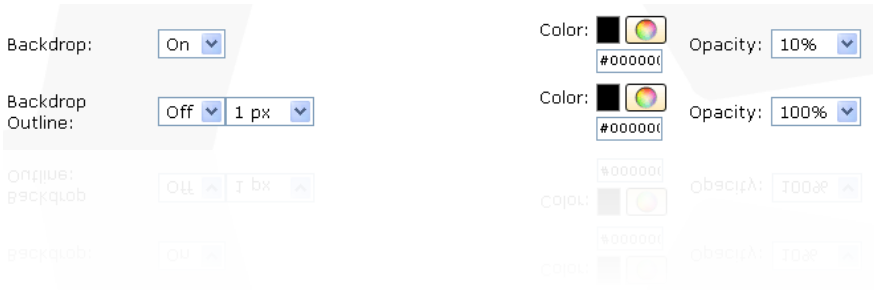


FIGURE E.6: Editing the Backdrop and Outline

E.1 The Preview Window

As you make changes to your template, the preview window will update automatically. You can force an update by clicking on the refresh icon. If you click on a block within the preview picture, Carousel will select that block and you can begin editing its properties.

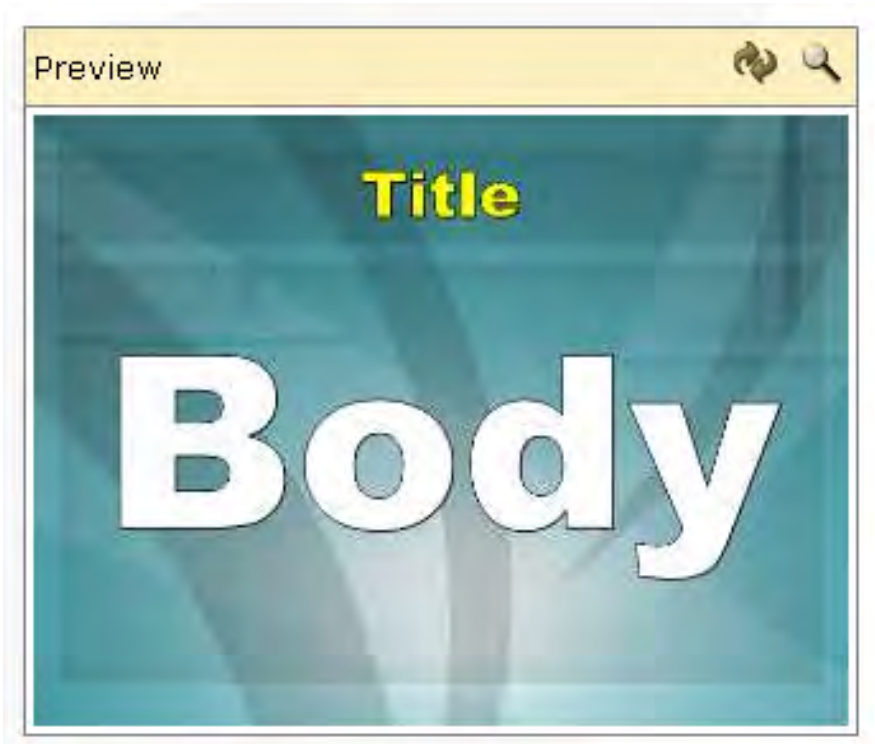


FIGURE E.7: Template Editor's Preview Window

If you would like see a larger example of your template, click on the **Full Screen Preview** icon .

Appendix F Custom Time Format Chart

Format Pattern	Description	Example
d	The day of the month. Single-digit days will not have a leading zero.	7
dd	The day of the month. Single-digit days will have a leading zero.	07
ddd	The abbreviated name of the day of the week: Sun, Mon, Tue, Wed, Thu, Fri, and Sat.	Thu
dddd	The full name of the day of the week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday.	Thursday
M	The numeric month. Single-digit months will not have a leading zero.	8
MM	The numeric month. Single-digit months will have a leading zero.	08
MMM	The abbreviated name of the month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.	Aug
MMMM	The full name of the month: January, February, March, April, May, June, July, August, September, October, November, December.	August
y	The year without the century. If the year without the century is less than 10, the year is displayed with no leading zero.	0
yy	The year without the century. If the year without the century is less than 10, the year is displayed with a leading zero.	00
yyyy	The year in four digits, including the century.	2000
h	The hour in a 12-hour clock. Single-digit hours will not have a leading zero.	4
hh	The hour in a 12-hour clock. Single-digit hours will have a leading zero.	04
H	The hour in a 24-hour clock. Single-digit hours will not have a leading zero.	16
HH	The hour in a 24-hour clock. Single-digit hours will have a leading zero.	16
m	The minute. Single-digit minutes will not have a leading zero.	32
mm	The minute. Single-digit minutes will have a leading zero.	32
s	The second. Single-digit seconds will not have a leading zero.	32
ss	The second. Single-digit seconds will have a leading zero.	32
t	The first character in the AM/PM.	P
tt	The AM/PM designator.	PM
z	The time zone offset (+ or - followed by the hour only). Single-digit hours will not have a leading zero. For example, Pacific Standard Time is -8.	-8
zz	The time zone offset (+ or - followed by the hour only). Single-digit hours will have a leading zero. For example, Pacific Standard Time is -08.	-08
zzz	The full time zone offset (+ or - followed by the hour and minutes). Single-digit hours and minutes will have leading zeros. For example, Pacific Standard Time is -08:00.	-08:00

F.1 Examples

MMMM dd, yyyy : September 15, 2002

M/d/yy : 9/15/2002 (or for the 5th, 9/5/2002)

ddd MMMM dd, yyyy: h:mm:ss tt : Sun. September 15, 2005: 5:27:13 PM

Appendix G PowerPoint: How To Import Slides

As of version 6 of Carousel, directly importing Microsoft PowerPoint presentations is no longer possible. This is because Microsoft has eliminated the features that Carousel depended on for importing and playing slides.

New Bulletin: Upload: Upload a Bulletin Package

The good news is that we've added features to the *New Bulletin: Upload: Upload a Bulletin Package* menu that makes importing JPEG versions of your slides a breeze.

PowerPoint transitions and videos will not work with the new method of importing presentations.

G.1 Saving PowerPoint Presentations As JPEG or PNG files

The key to importing a PowerPoint presentation is to export all of the slides as JPEG or PNG images. Accomplishing this is very simple:

Step 1: In PowerPoint, choose the **Save As...** option from the **File** menu or the **Office** icon.

If you click on the arrow to open the sub-menu, you'll have to pick the **Other Formats** option. Otherwise, just click on the **Save As** option.

Step 2: Choose either "`JPEG File Interchange Format`" or "`PNG Portable Network Graphics Format`", as we do in figure G.1.

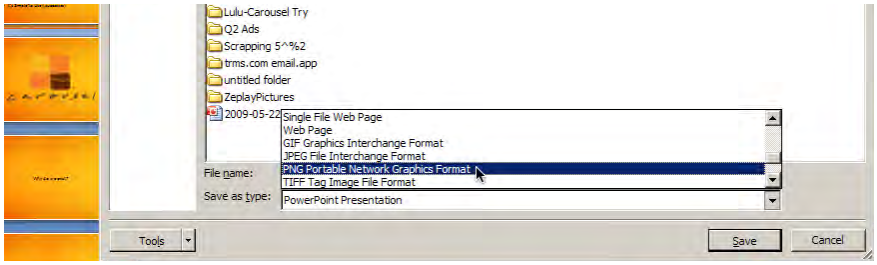


FIGURE G.1: Saving a presentation as a list of PNG files

Step 3: The dialog box in figure G.2 on the following page will appear. Choose the **Every Slide** option to export every slide of your presentation.

If you want only a sub-set of slides, delete the excluded slides and save. You can always undo this action when you're done exporting the slides.

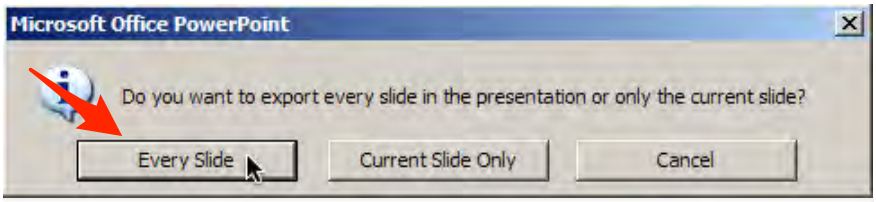

Microsoft Office PowerPoint
Do you want to export every slide in the presentation or only the current slide?
Every Slide
Current Slide Only
Cancel

FIGURE G.2: Have it save every slide

G.2 Making the Zip File

Step 4: Find the folder that was created, which has the name of the presentation and contains all of the slides.

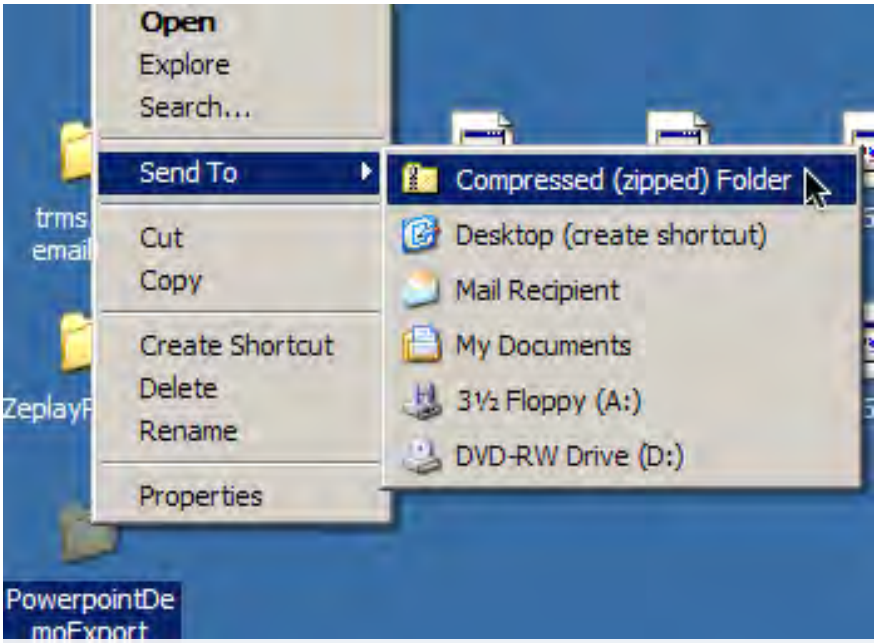


FIGURE G.3: Make the folder into a ZIP file

Step 5: Right-click on the folder and choose **Send To -> Compressed (zipped) Folder**. (figure G.3) This will be the file that Carousel will import.

G.3 Importing the Slides Into Carousel

New Bulletin: Uploaded: Upload a Bulletin Package

Step 6: In Carousel, go to *New Bulletin: Uploaded: Upload a Bulletin Package*

Step 7: Choose the zip file that you created in step 5.

Step 8: Click the upload button. (figure G.4)

FIGURE G.4: Importing a zip file as a bulletin package

Step 9: Carousel will confirm that your bulletins were processed, as you can see in figure G.5. It's a great idea to use the **Save To Group** feature, which clumps all of your slides into one group, ordered by slide number.

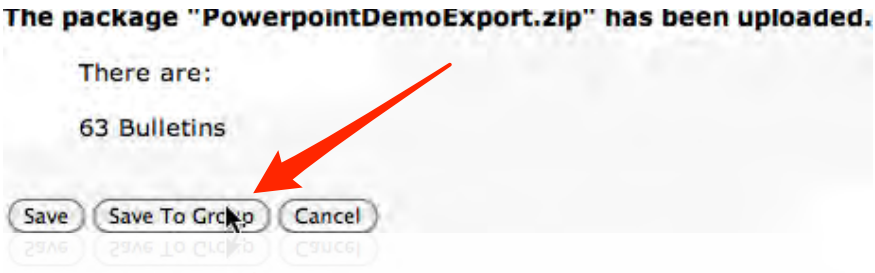


FIGURE G.5: *Upload Bulletin Package Confirmation* form. **Save To Group** is a nice way to organize your PowerPoint presentation within Carousel

If you chose the **Save** option instead, your slides will be placed individually and in order, but will be harder to delete and otherwise manage the presentation.

FIGURE G.6: The presentation imported as a group

Appendix H Carousel Monitor Control

Carousel Monitor Control is a system tray application that allows the user to schedule a monitor to power on and off. It can control the power state by either using windows power management technology, or by issuing a command via the serial port. The application allows you to have four (4) power events per day, two "on" events and two "off" events.

H.1 Where Do I Find Carousel Monitor Control?

The Carousel Monitor Control application is an open source application that can be downloaded for free at:

labs.trms.com

H.2 Installing the Application

Carousel Monitor Control is a Microsoft Windows 32 bit application. It requires Microsoft .Net Framework 3.5 SP1 or higher. To install the application run the **Carousel Monitor Control.exe** installer on the computer that will be controlling the monitor. The installer will place the runtime files in your target directory and install a shortcut to the system tray application in the startup folder. It will also launch the application at the end of the install process.

Because the application runs in the system tray, it requires that a user be logged into Windows for it to function. Carousel Monitor Control does not run as a service.

H.3 System Tray Menu

Carousel Monitor Control appears in the lower-right corner of your screen. Right-clicking on the icon beings up the menu.

The **Edit Configuration...** menu allows you to adjust the power on and off commands (section H.4 on the next page).

The **Edit Schedule...** menu allows you to change when the monitors power on and off (section H.6 on page 269).

The **Power On Now** menu powers the monitor on based on the current configuration.

The **Power Off Now** menu powers the monitor off based on the current configuration.

H.4 Edit Configuration...

There are two options for controlling the monitors.

The **Use Windows power management** method uses the power management features built into windows. This is the same technology that puts your monitor to sleep after a period of inactivity.

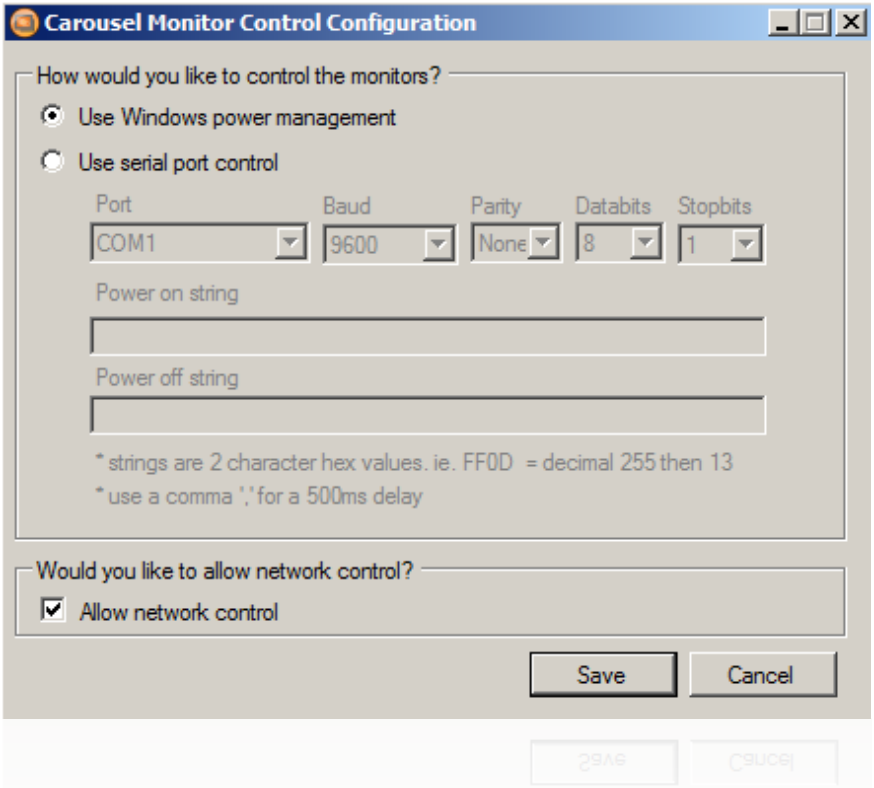


FIGURE H.1: Configuration Window

Not all monitors support Windows power management.

The **Use serial port control** method sends data out the serial port to control the monitor. This can be used for displays that do not work properly with windows power management and that have a serial port with an available protocol.

The Carousel Monitor Control application does not come with predefined control codes for controlling monitors via the serial port. It is the responsibility of the installer to find the codes for the particular display they are controlling.

Tightrope cannot provide assistance finding codes or programming for specific displays.

The **Power on string** and **Power off string** fields allow you to enter monitor control codes in hexadecimal format[1]. Strings are two character hex values. For example, FFOD = decimal 255 then 13. Use a comma ',' for a 500ms delay between characters[2].

[1] http://en.wikipedia.org/wiki/Hexadecimal
[2] http://en.wikipedia.org/wiki/ASCII

H.5 Example Strings

Power on String : *4F4E,,13*

Power off String : *4F4646,,13*

The **Power on string** and **Power off string** will check if you have entered an invalid string. If so, it will alert you. To see the alert message, mouse-over the alert icon. Furthermore, it will alert you about any non-hexadecimal characters.

H.6 Edit Schedule...

There are two available schedules in the application. They are time and weekday based. The **Power On Time** and **Power Off Time** events will occur on the weekdays selected for that schedule.

FIGURE H.2: Schedule Window

If the **Power On Time** is later than the **Power Off Time** the application will assume that the event spans midnight and will offset the day appropriately. For example, if you tell the application to power on at 10:00 PM and power off at 3:00 AM on Saturday, the monitor will power on at 10:00 PM on Saturday and power off at 3:00 AM on Sunday.

H.7 Allowing Network Control

The **Allow network control** checkbox turns on and off remote network control of the Carousel Monitor Control App. When this option is turned on, the Monitor Control app will register it's self as a Bonjour service, and listen on TCP port 26908 for incoming data. If it receives a '+' character on the port, the monitor will turn on, if it receives a '-' character, the monitor will turn off. This feature allows other software applications to communicate and control monitors remotely.

Appendix I Live TV Input (TVI) Devices

This appendix describes how to configure and add (if needed) supported TVI input devices to a Carousel Server, Carousel Solo, or Carousel Player.

I.1 Hauppauge Hardware

Here we go over how to add and configure an external Hauppauge TVI box (figure I.1) to a Carousel Server, Carousel Solo, or Carousel Player.

FIGURE I.1: The Hauppauge hardware

I.1.1 Steps to setup Hauppauge

Step 1: Plug the TVI unit into AC power using the included power supply.

Step 2: Connect the TVI unit to the Carousel machine using the included USB cable.

Step 3: Browse to the **C:\TRMS Production\Drivers\TVI** folder and run the **Setup.exe** application.

If the drivers have not been loaded into this directory, you can download them from here:

hauppauge.lightpath.net/software/install_cd/cd_4.6a+.zip

Extract the zip file and run the Setup.exe application.

Step 4: After launching **Setup.exe**, select **Step 1: Install Drivers** (figure I.2 on the following page).

Step 5: The installer will begin to install the drivers (figure I.3 on the next page).

Step 6: When the installer has finished, select **Drivers have been updated Successfully. «click to exit»** (figure I.4 on page 273).

FIGURE I.2: The TVI Driver Installer

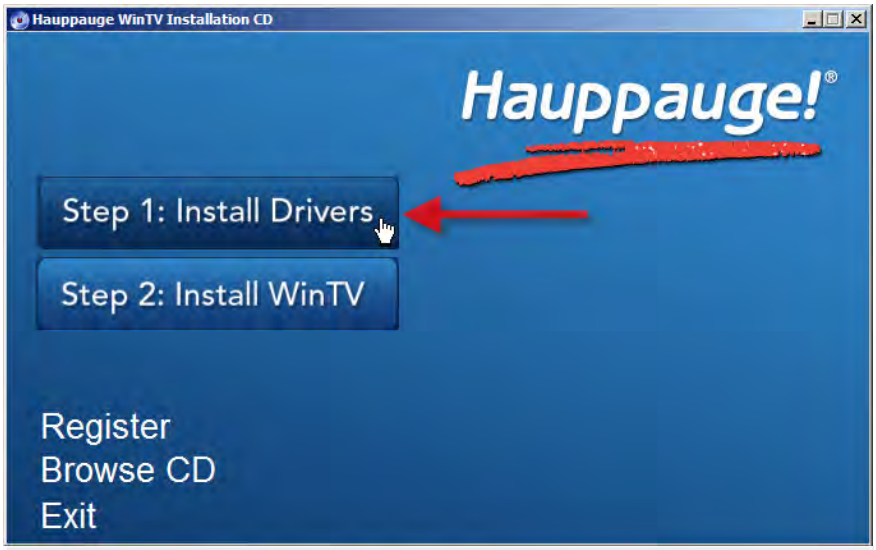


FIGURE I.3: Installing the drivers

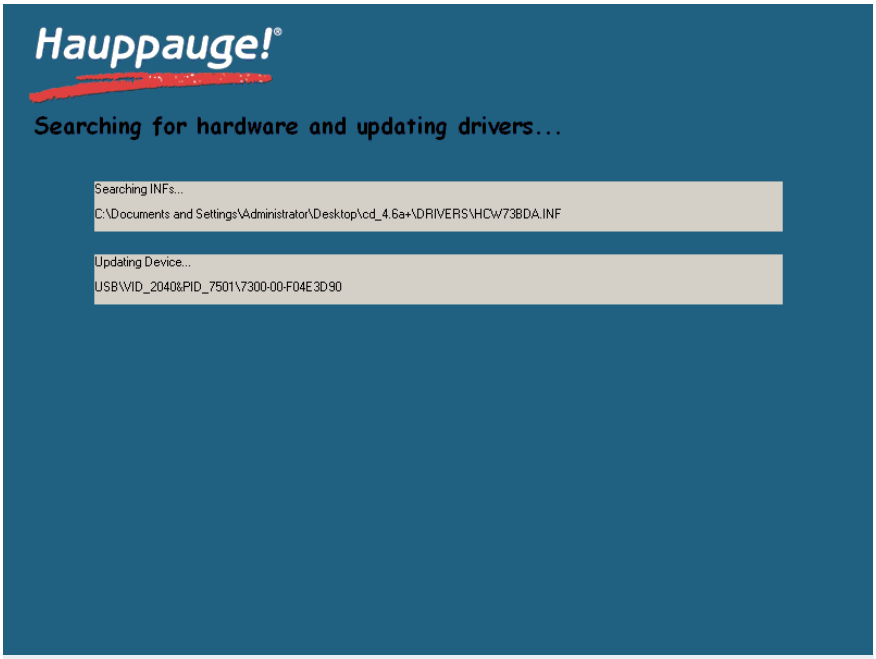
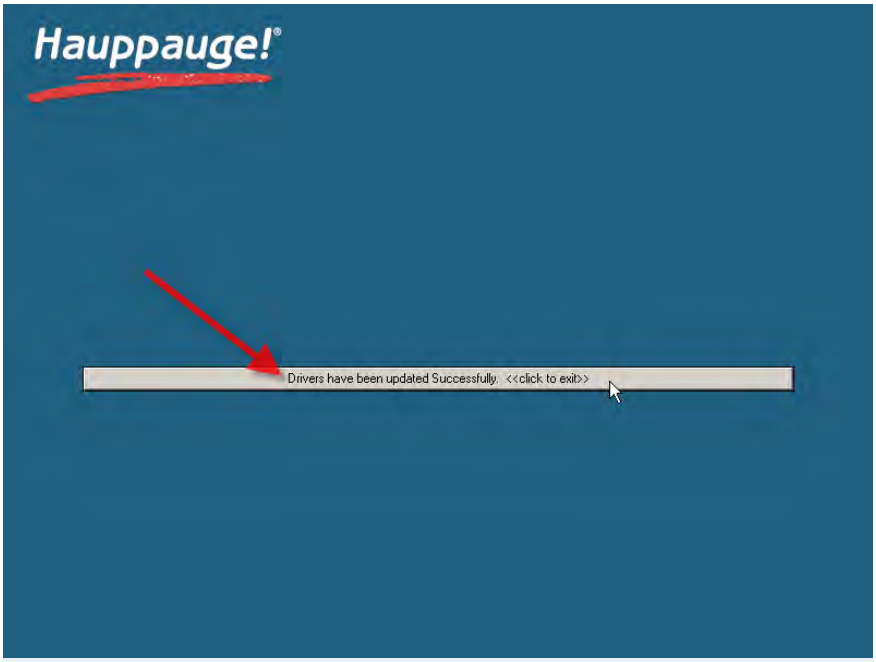


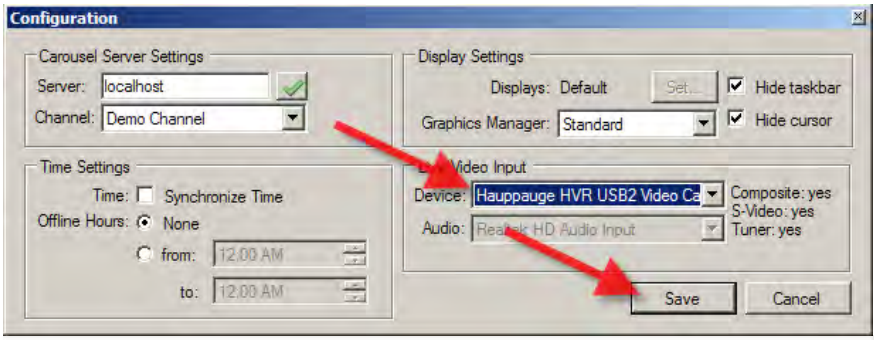
FIGURE I.4: Installation has finished



Step 7: Next, launch the **Carousel Display Engine** shortcut on the desktop and click the **Configure** button.

Step 8: In the configuration window, look for the **Live Video Input: Device** section and select the Hauppauge device (figure I.8 on page 276).

FIGURE I.5: Configuring the Display Engine



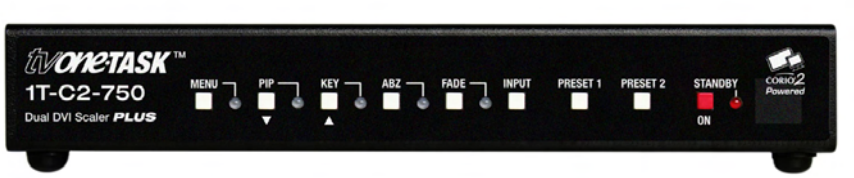
At this point, your hardware and software are now configured. See section 17.12 on page 159 for information on creating Live Video bulletins using the TVI box.

I.2 TVOne Hardware

Here we go over how to add and configure an external TVOne T1-C2-750 scaler box (figure I.6 on the next page) to a Carousel Server, Carousel Solo, or Carousel Player.

The T1-C2-750 is an external scaler that composites (picture in picture or PIP) the Carousel output with other HD video sources. These instructions assume you

FIGURE I.6: The TVOne hardware



are familiar setting up the T1-C2-750 unit, for more information go to the TVOne website at http://www.TVOne.com. While Carousel will only turn on, turn off, and position the PIP window it assumes that other settings have been pre-configured in the TVOne.

Tightrope can not help you configure the TVOne unit, if you do not know how to use TVOne products please contact TVOne tech support.

I.2.1 Steps to setup TVOne T1-C2-750

Step 1: Connect Carousel into **DVI-I 1**

Step 2: Connect your HD video source into **DVI-I 2**

Step 3: Connect the **HD/PC SCALED OUT** to your monitor or distibution equipment

Step 4: Connect the **RS232** port to the serial port of the Carousel unit

Step 5: On the TVOne using the onscreen menus or the **C2 Control Panel** software, cofigure the following...

Step 6: Configure the **Output resolution** in the **Output** tab is the same resolution as the Carousel unit's output resolution

Step 7: Configure **Window A** in the **Windows** tab to **Input Source DVI-I 1** aka the Carousel input

Step 8: Configure **Window B** in the **Windows** tab to **Input Source DVI-I 2** aka the HD video source

Step 9: Launch the **Carousel Display Engine** shortcut on the desktop and click the **Configure** button.

Step 10: In the configuration window, look for the **Live Video Input: Device** section and select the TVOne T1-C2-750 on the appropriate COM port

Remember: Carousel only sets to on/off state and position of the PIP window. To make setup easier, you can turn on the PIP window and position it manually to verify that both sources are working correctly then let Carousel fine tune the positioning. Furthermore, any other settings/processing you manually configure stay active during Carousel control.

I.3 AVerMedia Hardware

Here we go over how to configure the internal AVerMedia capture card included in the 310 models of Carousel hardware. The AVerMedia capture card is capable of taking in Composite, Component, S-Video, and HDMI signals.

I.3.1 Steps to setup AVerMedia in Carousel

Step 1: Connect your video source to the AVerMedia card in the Carousel machine using the included breakout cable plugged into the port labeled **AV IN** or by plugging HDMI directly into the port labeled **HDMI**.

Step 2: Next, launch the **Carousel Display Engine** shortcut on the desktop and click the **Configure** button.

Step 3: In the configuration window, look for the **Live Video Input: Device** section and select the **AVerMedia** device.

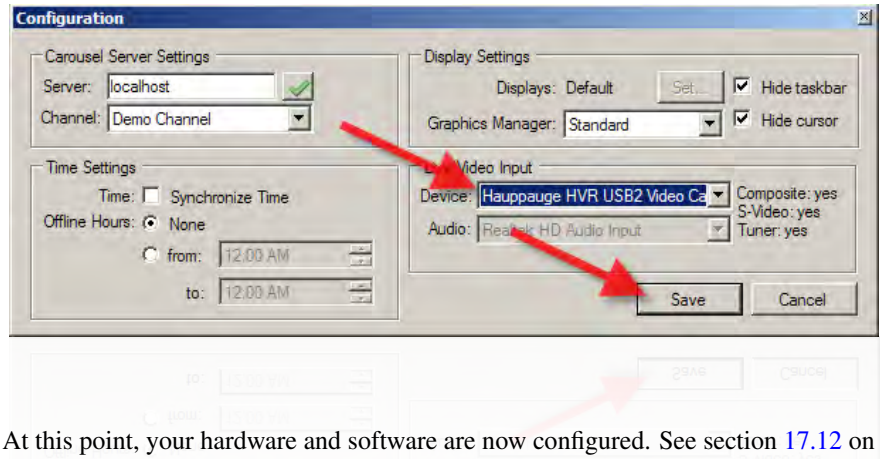


FIGURE I.7: Configuring the Display Engine

At this point, your hardware and software are now configured. See section 17.12 on page 159 for information on creating Live Video bulletins using the TVI box.

I.4 Contemporary Research and AVerMedia Hardware

This appendix describes how to configure the Contemporary Research 232-ATSC+ along with the internal AVerMedia capture card included in the 310 models of Carousel hardware. The 232-ATSC+ allows the tuning of channels via a RS-232 connection, and must be connected to the AVerMedia card via component cables.

You MUST connect the 232-ATSC+ to the internal AVerMedia card via component a connection, all other connections will not work.

I.4.1 Steps to setup 232-ATSC+ with AVerMedia in Carousel

Step 1: Connect power and a signal wire (ATSC or Cable) to the Contemporary Research 232-ATSC+.

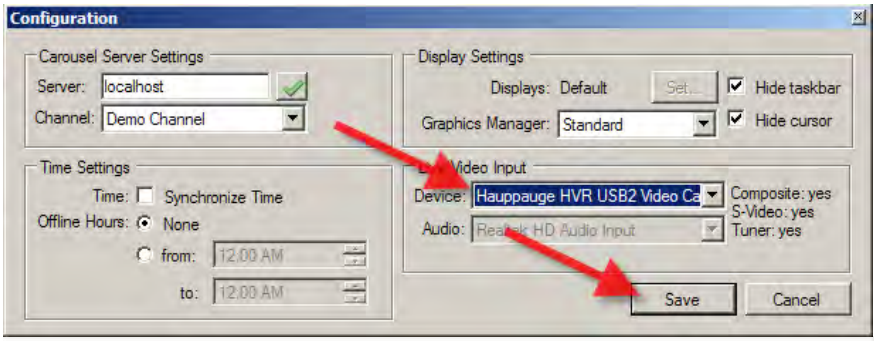
Step 2: Use a female to female null modem RS-232 cable to connect the Carousel hardware to the 232-ATSC+.

Step 3: Connect your 232-ATSC+ to the AVerMedia breakout cable using a component cable.

Step 4: Next, launch the **Carousel Display Engine** shortcut on the desktop and click the **Configure** button.

Step 5: In the configuration window, look for the **Live Video Input: Device** section and select the **Contemporary Research on Port 1** device.

FIGURE I.8: Configuring the Display Engine



At this point, your hardware and software are now configured. See section 17.12 on page 159 for information on creating Live Video bulletins using the TVI box.

Appendix J Enterprise Software Installation

Installing Carousel Enterprise on a web server is very involved because web servers are flexible and IT requirements vary. Therefore, it really is impossible for us to give a casual computer user all of the information needed to install Carousel Enterprise successfully in every environment. This chapter is for the advanced user only.

The next few sections will walk you through installing Carousel Framework on your Windows Server 2008 environment in a simple, limited installation. The last section, section J.3 on page 290, *Advanced Enterprise Installations: Separating SQL and Media Storage*, covers topics such as remote media directories and existing SQL servers.

J.1 Windows 2008 Installation

Prerequisites:

- Windows Server 2008 or 2008R2
- Internet Information Server 7 or Higher
- Microsoft .NET Framework 4.0
- SQL Server 2008 / 2012
- ASP.NET Application Server
- ASP.NET State Service
- FrontDoor Installer
- Carousel Framework Installer
- Hardware License Key from Tightrope Media Systems

J.1.1 Installing and Configuring IIS Components and Services

Step 1: Open *Server Manager* from the toolbar and click on **Roles** in the left pane. (figure J.1)

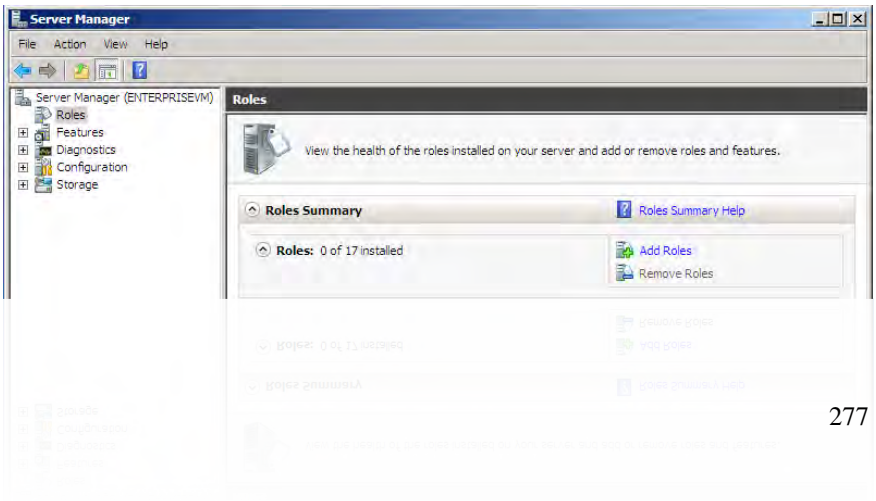


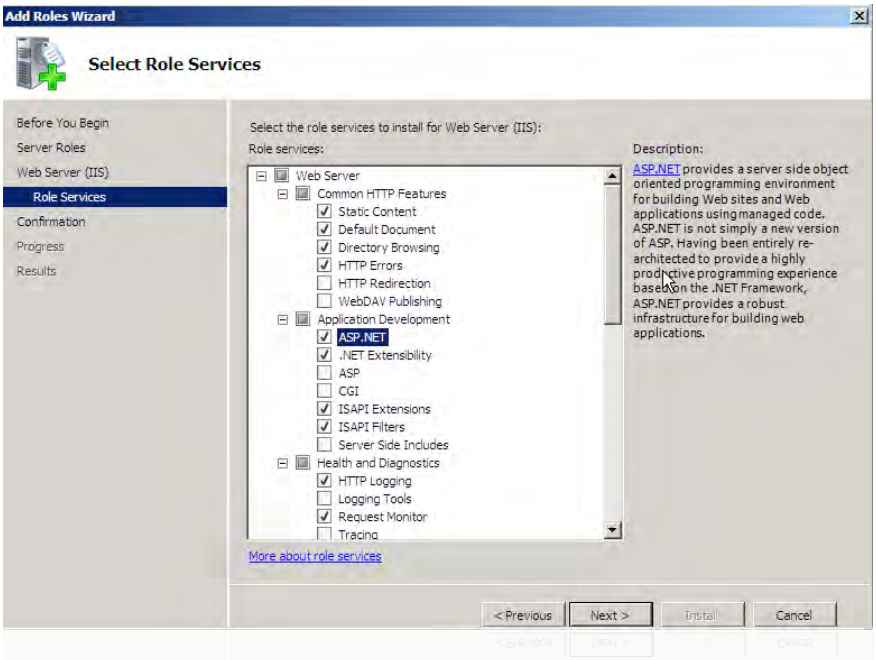
FIGURE J.1: Server Manager in the **Roles** snap-in

Step 2: Click **Add Roles**.

Step 3: Click **Next**.

Step 4: Under the **Role Services** window, choose **ASP.NET**. (figure J.2)

FIGURE J.2: Adding ASP.NET



Step 5: It will tell you there are other required role services needed as well. Click **Add Required Role Services**.

Step 6: Click **Next**.

Step 7: Click **Install**.

Step 8: Click **Close** once the installation of IIS has completed.

J.1.2 Installing .NET Framework

Step 9: Open *Server Manager* from the toolbar, if it isn't already open.

Step 10: Click on **Features** in the pane on the left.

Step 11: Click on **Add Features**.

Step 12: Under the *Select Features* window, choose **.NET Framework 3.5.1 Features**. (figure J.3 on the next page) It will tell you there are other required features needed as well. Click **Add Required Features**.

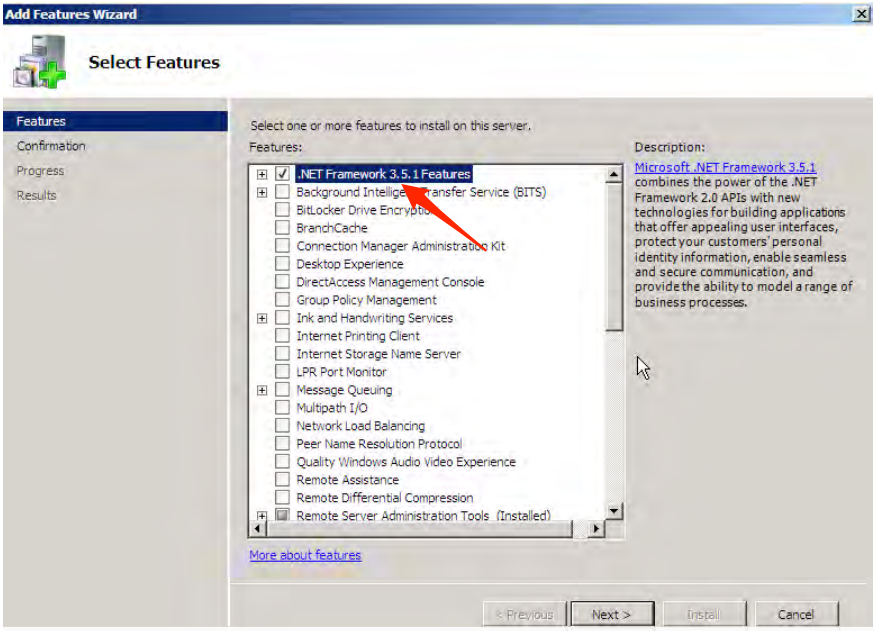
Step 13: Click **Next**.

Step 14: Click **Install**.

Step 15: Click **Close** once the installation of .NET Framework 3.5.1 has completed.

Step 16: Install .NET Framework 4.0 from Microsoft's web site.

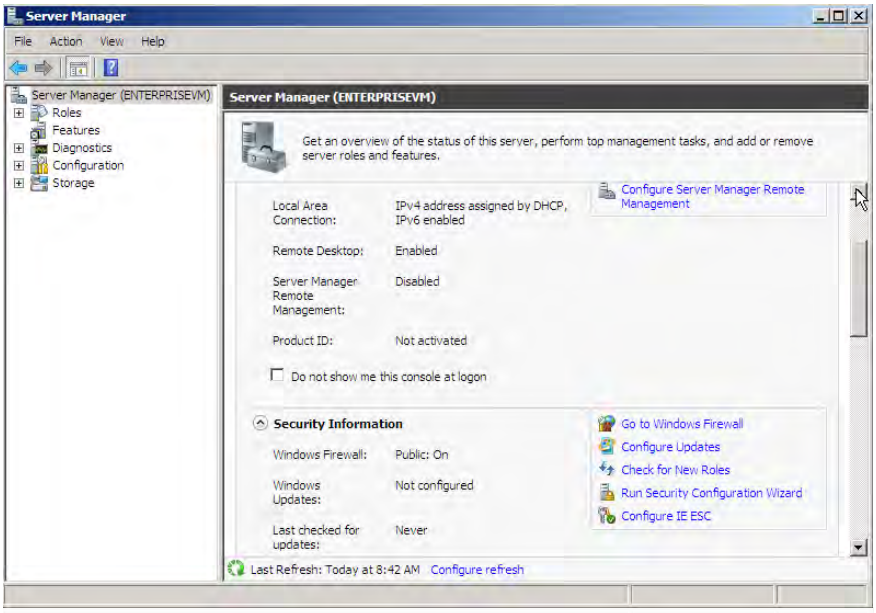
FIGURE J.3: Adding *.NET Framework 3.5.1*


Add Features Wizard
Select Features
Features
Confirmation
Progress
Results
Select one or more features to install on this server.
Features:
.NET Framework 3.5.1 Features
Background Intelligent Transfer Service (BITS)
BitLocker Drive Encryption
BranchCache
Connection Manager Administration Kit
Desktop Experience
DirectAccess Management Console
Group Policy Management
Ink and Handwriting Services
Internet Printing Client
Internet Storage Name Server
LPR Port Monitor
Message Queuing
Multipath I/O
Network Load Balancing
Peer Name Resolution Protocol
Quality Windows Audio Video Experience
Remote Assistance
Remote Differential Compression
Remote Server Administration Tools (Installed)
More about features
Description:
Microsoft .NET Framework 3.5.1 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.
< Previous
Next >
Install
Cancel

J.1.3 Downloading SQL Server Express and SQL Server Management Studio Express

Step 17: Open **Server Manager** from the toolbar if it isn't already open, and click on **Server Manager** in the left pane. (figure J.4)

FIGURE J.4: Server Manager


Server Manager
File Action View Help
Server Manager (ENTERPRISEVM)
Roles
Features
Diagnostics
Configuration
Storage
Server Manager (ENTERPRISEVM)
Get an overview of the status of this server, perform top management tasks, and add or remove server roles and features.
Configure Server Manager Remote Management
Local Area Connection: IPv4 address assigned by DHCP, IPv6 enabled
Remote Desktop: Enabled
Server Manager Remote Management: Disabled
Product ID: Not activated
Do not show me this console at logon
Security Information
Windows Firewall: Public: On
Windows Updates: Not configured
Last checked for updates: Never
Go to Windows Firewall
Configure Updates
Check for New Roles
Run Security Configuration Wizard
Configure IE ESC
Last Refresh: Today at 8:42 AM Configure refresh

Step 18: Under *Security Information* in the right pane, click on **Configure IE ESC**.

Step 19: Turn IE ESC "`Off`" for Administrators, then click **OK**. (figure J.5)

Step 20: *2008 Server* needs *SQL Server Express SP3*, which can be downloaded at Mi-

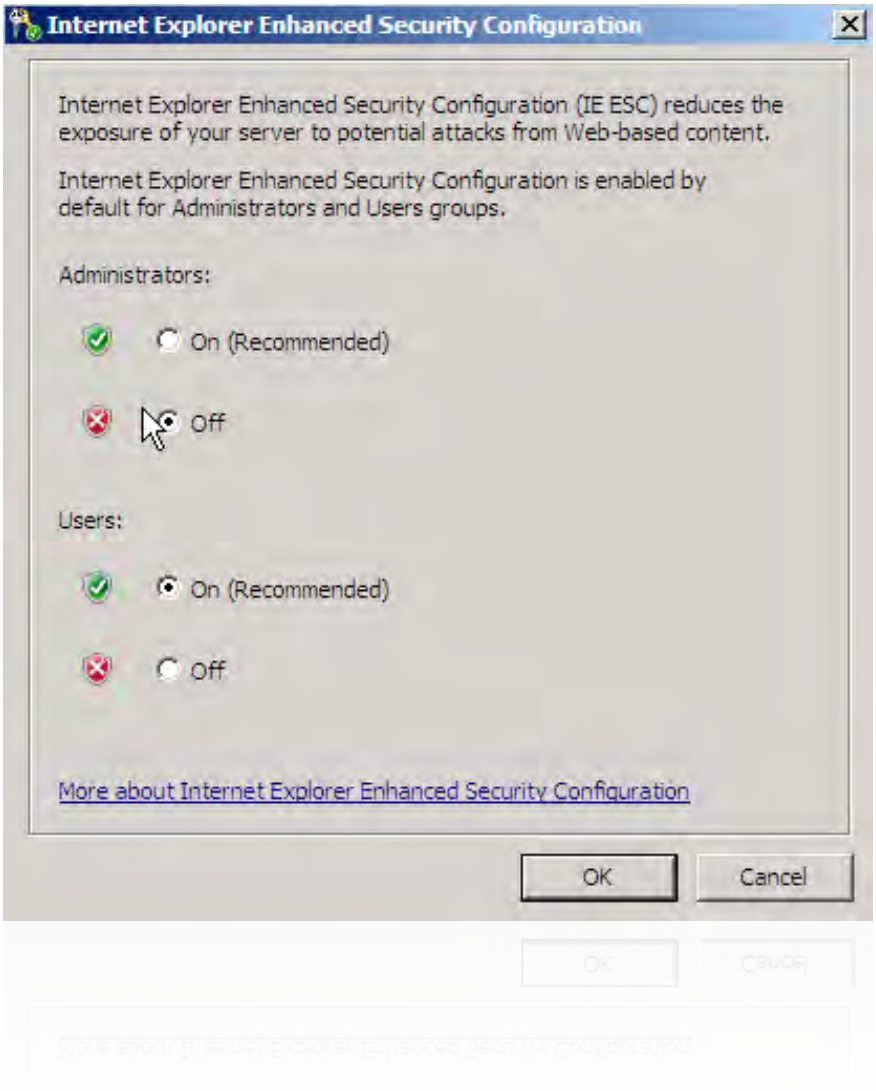

Internet Explorer Enhanced Security Configuration
Internet Explorer Enhanced Security Configuration (IE ESC) reduces the exposure of your server to potential attacks from Web-based content.
Internet Explorer Enhanced Security Configuration is enabled by default for Administrators and Users groups.
Administrators:
On (Recommended)
Off
Users:
On (Recommended)
Off
More about Internet Explorer Enhanced Security Configuration
OK
Cancel

FIGURE J.5: Turning off IE Enhanced Security for Administrators

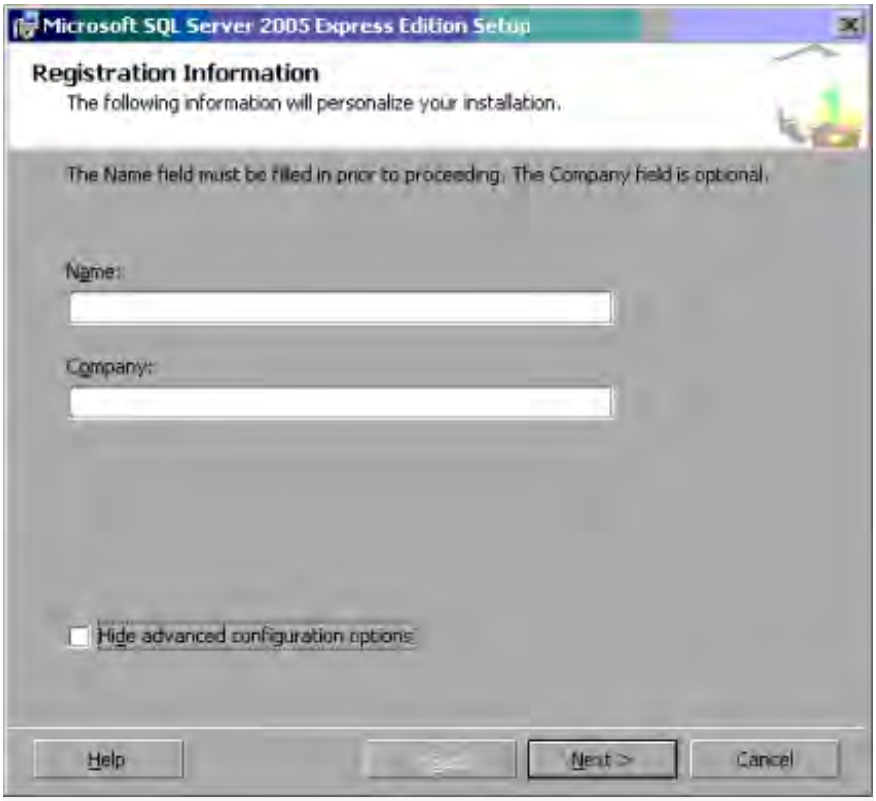
! → crosoft's web site. You can select the link in the PDF version of this manual or search for "`SQL Server Express SP3`". Make careful note on installing the correct version. If you're running a 64 bit version of 2008, make sure that you get the 64-bit installer for *Management Studio*.

J.1.4 Installing SQL Server Express

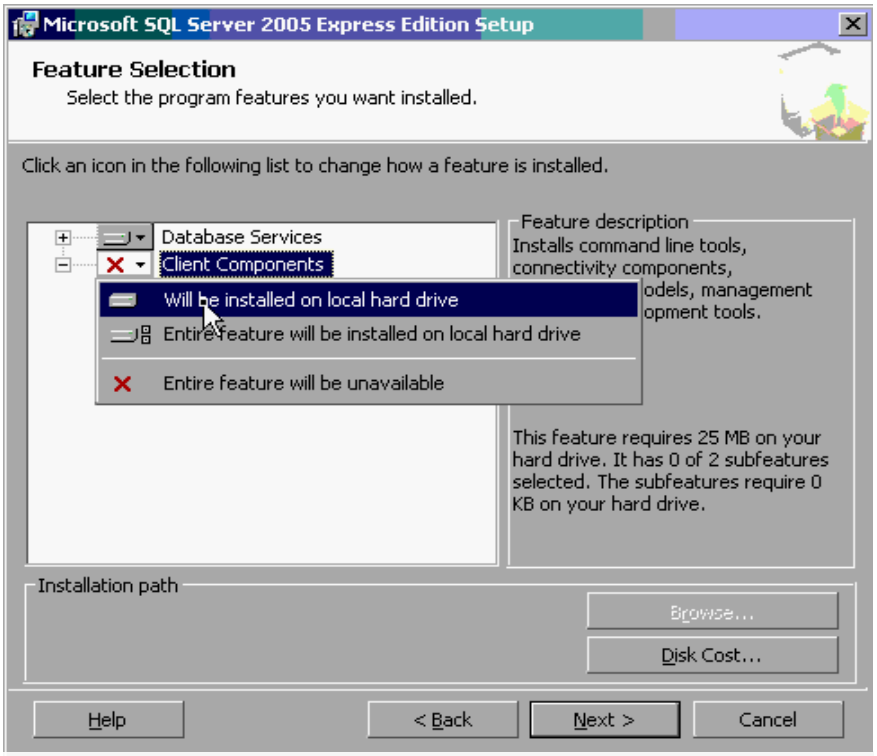
Step 21: Run the **SQL Server Express 2008 or 2012 installer**.

Microsoft SQL Server 2005 Setup
Welcome to the Microsoft SQL Server Installation Wizard
Setup will help you install, modify or remove Microsoft SQL Server. To continue, click Next.
< Back
Next >
Cancel

Step 22: Enter your name and company, uncheck the **Hide advanced configuration options** checkbox, and click next.


Microsoft SQL Server 2005 Express Edition Setup
Registration Information
The following information will personalize your installation.
The Name field must be filled in prior to proceeding. The Company field is optional.
Name:
Company:
Hide advanced configuration options
Help
Next >
Cancel

Step 23: Click on **Connectivity Components**, select **Will be installed on local hard drive**, and click next.


Microsoft SQL Server 2005 Express Edition Setup
Feature Selection
Select the program features you want installed.
Click an icon in the following list to change how a feature is installed.
Database Services
Client Components
Will be installed on local hard drive
Entire feature will be installed on local hard drive
Entire feature will be unavailable
Feature description
Installs command line tools, connectivity components,
odels, management
opment tools.
This feature requires 25 MB on your hard drive. It has 0 of 2 subfeatures selected. The subfeatures require 0 KB on your hard drive.
Installation path
Browse...
Disk Cost...
Help
< Back
Next >
Cancel

Step 24: Select **Default Instance** from the Instance Name dialog box and click **Next**.

Microsoft SQL Server 2005 Express Edition Setup
Instance Name
You can install a default instance or you can specify a named instance.
Provide a name for the instance. For a default installation, click Default instance and click Next. To upgrade an existing default instance, click Default instance. To upgrade an existing named instance select Named instance and specify the instance name.
Default instance
Named instance
Help
< Back
Next >
Cancel

Step 25: Click **Next** on the next two screens, keeping the defaults selected.

J.1.5 Installing SQL Server Management Studio Express

Step 26: If you're running SQL Server Express 2008 and 2012, ensure that you install the management tools from the installer.

Microsoft SQL Server Management Studio Express Setup
Welcome to the Install Wizard for Microsoft SQL Server Management Studio Express
Setup helps you install, modify or remove Microsoft SQL Server Management Studio Express. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

J.1.6 Enabling Named Pipes for SQL Server Express

Step 27: Click **Start -> Programs -> Microsoft SQL Server -> Configuration Tools -> SQL Server Configuration Manager**.

Step 28: Under **SQL Server Network Configuration -> Protocols for MSSQLSERVER** Double-click the protocol name **Named Pipes** and set the property **Enabled** to **Yes**, then apply your change.

The Named Pipes address we're connecting to with our installers is \\.pipe\sql\query. This should be set for you as long as you chose the **Default Instance** as noted above.

Step 29: Restart your server at this time to apply all changes and updates.

J.1.7 Setting up ASP.NET to run in Classic Mode

Step 30: Open *Server Manager* from the toolbar, if it isn't already open.

Step 31: Expand **Roles**.

Step 32: Expand **Web Server (IIS)**.

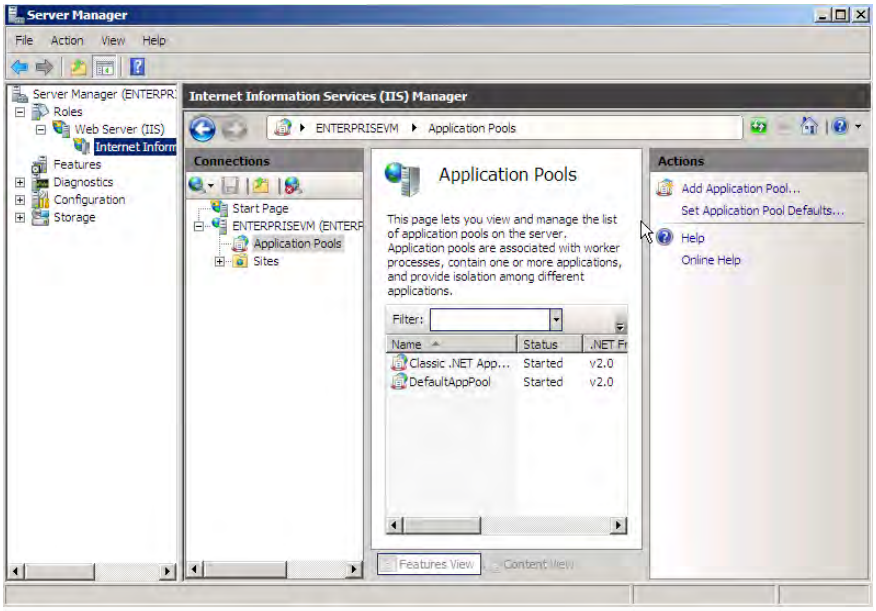
Step 33: Click on **Internet Information Services (IIS) Manager**.

Step 34: Under the *Connections* pane, expand your **<Machine Name>** to show Application Pools and Sites.

Step 35: Highlight **Application Pools** under your **<Machine Name>**. (figure J.6 on the next page)

Step 36: Highlight **ASP.NET v4.0 Classic** in the *Application Pools* pane, and click on **Advanced Settings** in the *Actions* pane on the right.

FIGURE J.6: Application Pools on your server in *Server Manager*



Step 37: Under the *Process Model* section of *Advanced Settings*, highlight **Identity** and click the **...** button that appears on the right side of that line.

Step 38: Select "`LocalSystem`" under the **Built-in account** drop down box and click **OK**. (figure J.7 on the facing page)

Step 39: Click **OK** again to close the Advanced Settings window.

J.1.8 Installing Tightrope Software

Step 40: Run the **FrontDoor** installer and follow the **Installer Wizard**.

You might see a login error for user (null). This is normal, FrontDoor will install anyway.

Step 41: Run the **Carousel Framework** installer and follow the **Installer Wizard**.

J.1.9 Adding User Permissions to the Carousel and FrontDoor Databases

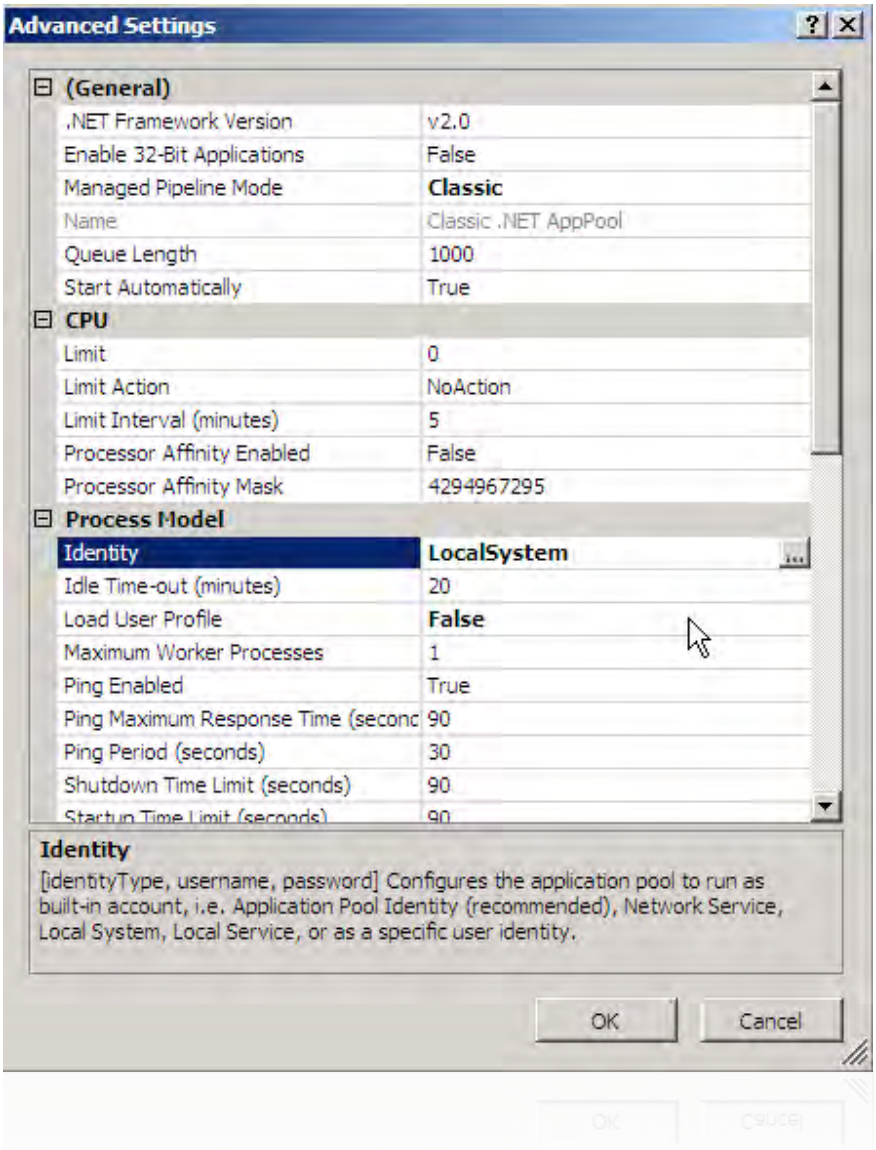
Step 42: Open the **SQL Server Management Studio** and **Connect**.

Step 43: Expand **Databases: Carousel50: Security: Users**. Right-click on **Users** and select **New User**. Type "`IIS AppPool\ASP.NET v4.0 Classic`" in the **User name** field. Type the same text in **Login name** field.

Step 44: In the **Database role membership** box, select **db-owner**. Click **OK**. (figure **??** on page ??)

Step 45: Repeat section **??** on page ?? for the **FrontDoor50** database. Expand **FrontDoor50: Security: Users**. Follow the previous steps for adding **IIS AppPool\ASP.NET v4.0 Classic** to **FrontDoor50**.

FIGURE J.7: Selecting "`LocalSystem`" in **Built-in account**



J.1.10 Changing the Application Pool for Installed IIS Applications

Step 46: Open *Server Manager* from the toolbar, if it isn't already open.

Step 47: Expand **Roles**.

Step 48: Expand **Web Server (IIS)**.

Step 49: Click on **Internet Information Services (IIS) Manager**.

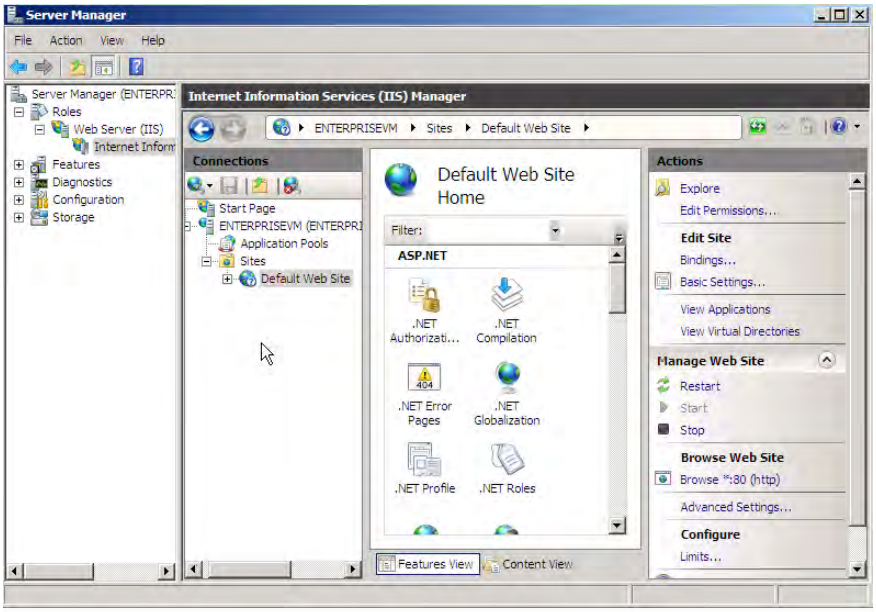
Step 50: Under the *Connections* pane, expand your **<Machine Name>** to show **Application Pools** and **Sites**.

Step 51: Expand **Sites** and highlight **Default Web Site**. (figure J.8 on the next page)

Step 52: In the **Actions** pane on the right, click **Advanced Settings**.

Step 53: Under the **Application Pool** section of *Advanced Settings*, highlight **DefaultAppPool**.

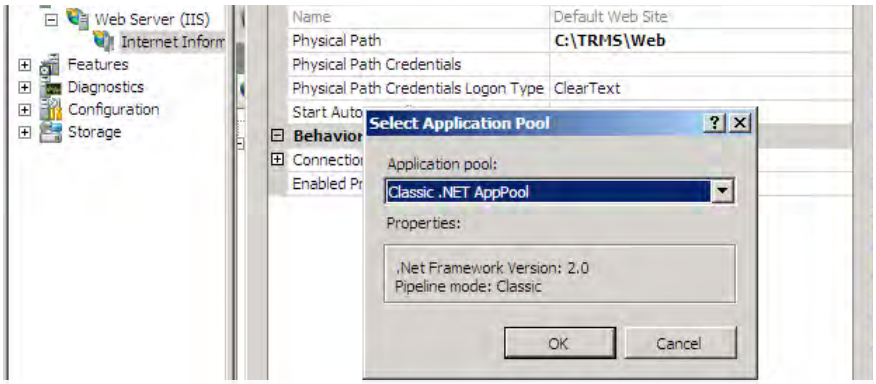
FIGURE J.8: The *Default Web Site*



Step 54: Click the **...** button that appears on the right side of that line.

Step 55: Select "`ASP.NET v4.0 Classic`" under the **Application Pool** drop-down box. (figure J.9)

FIGURE J.9: Selecting "`ASP.NET v4.0 Classic`"



Step 56: Click OK.

Step 57: Click OK again to close the Advanced Settings window.

Step 58: Expand **Default Web Site** to see both the *FrontDoor* and *Carousel* web applications.

Step 59: Highlight **FrontDoor**.

Step 60: Repeat step 52 on the previous page through step 57 for FrontDoor.

Step 61: Highlight **Carousel**.

Step 62: Repeat step 52 on the previous page through step 57 for Carousel.

J.1.11 Final Configuration and System Check

Step 63: Open *Server Manager* from the toolbar, if it isn't already open.

Step 64: Expand **Roles**, Expand **Web Server (IIS)**.

Step 65: Click on **Internet Information Services (IIS) Manager**.

Step 66: Under the *Connections* pane, expand your **<Machine Name>** to show **Application Pools** and **Sites**.

Step 67: Expand **Sites** and highlight **Default Web Site**.

Step 68: In the *Actions* pane on the right, click **Basic Settings**.

Step 69: Edit the **Physical Path** field to show where your TRMS/Web folder resides. This generally will be `D:\TRMS\Web` or `C:\TRMS\Web` (figure J.10)

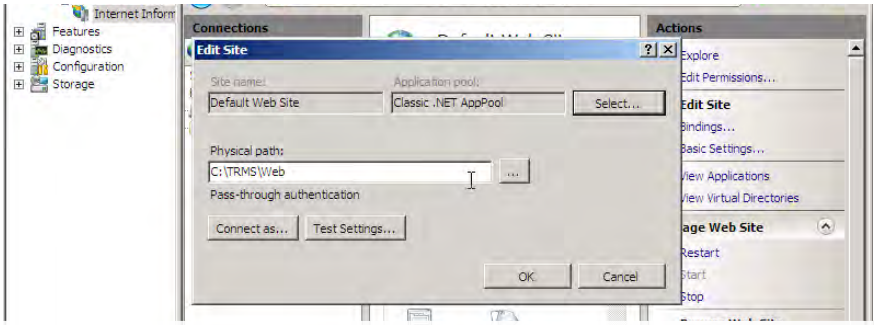


FIGURE J.10: The path to your TRMS installation

Step 70: Launch the web browser and type "`localhost`" in the address field and press the *enter* key.

Step 71: If you see the error *"Could not find stored procedure 'dbo.aspnet_CheckSchemaVersion'."* when trying to login to front door, follow these steps:

Substep A: In *Windows*, browse to `C:\Windows\Microsoft.NET\Framework\v4.0.30319\`.

Substep B: Double click on **aspnet_regsql.exe**

Substep C: Click **Next**

Substep D: Select **Configure SQL Server for application services** if it isn't already, and click **Next**.

Substep E: Under the **Database** drop-down list, select "`FrontDoor50`" and click **Next**.

Substep F: Click **Next** once more.

Substep G: Click **Finish**.

Substep H: Open the command prompt by typing "`cmd`" into the **Run...** option in the *Start* menu in *Windows*.

Substep I: Type:

```
oSql -E -i <DriveLetter>:\TRMS\Database\Scripts\FrontDoor50-PopulateD
```

...Where `<DriveLetter>` is the drive the Tightrope software is installed to. (This is generally either the "`C`" or "`D`" drive.)

Direct your web browser to your FrontDoor address once again, and it should now correctly load.

Step 72: Log into FrontDoor.

By default the username is "`admin`" and password is "`trms`". *You'll want to change this!*

Step 73: Contact Tightrope Support to obtain a license key.

Once licensed, the system should be ready to use! If you don't already have a customized design, visit store.trms.com for a variety of free designs, or the option to have on customized for your organization.

J.2 Carousel Player Software Installation

It's possible that you've purchased copies of our Carousel Player software to install and run on your own hardware. If so, this section will quickly touch on the requirements needed to run the Display Engine from the Carousel Player software. This includes:

- Windows XP or Windows 7
- DirectX 9 Compatible Graphics Chipset
- Microsoft .NET Framework 2.0

The Carousel Player software uses a unique Security Identifier (SID) to differentiate itself from other Players in the Player Status list. This SID is created when Windows is first installed. If you're cloning your Players from a single OS installation, beware that these players will all share the same SID, causing the Player Status screen to not operate correctly.

Once you have the above requirements installed, you may proceed with the Carousel Player software installation and configuration. For more info on configuration, see chapter 8 on page 71, *Configuring Players*.

J.3 Advanced Enterprise Installations: Separating SQL and Media Storage

This section is for *Pros Only*. We won't explain IIS concepts here. If you're having trouble understanding the concepts, you'll need to seek paid assistance from Tightrope Media Systems or one of our qualified installation partners.

Please understand that support does not handle Enterprise installations. These installations are a part of our service offerings, which must be purchased and scheduled.

J.3.1 Web Server Overview

The web server requirements are:

- IIS 5.1 or higher
- .NET Framework 4.0
- ASP.NET Application Server
- ASP.NET State Service

The three components to Carousel Enterprise Server (besides the Player's Display Engine) are:

- FrontDoor Web UI
- Carousel Web UI
- Carousel Service

The web server for Carousel must have two virtual directory applications, "Carousel" and "Front Door". Furthermore, the Carousel virtual directory must have a "Media" directory (either standard or virtual) inside it. The FrontDoor and Carousel Framework installers will create these virtual directories for you on the default web site. If you need to move them make sure the paths are the same and the applications are created.

The Application pool that Carousel is running must have read and write access to the "Carousel/Media" directory. Make sure it is running under an Identity with the correct permissions (Eg; Local System). Carousel uses the ASP.NET state server for session management. The web server also runs the Carousel service. This is a Windows service that runs in the background. It is responsible for marking pages active and stale in the database, keeping an in-memory cache of the bulletins to be displayed for the Display Engines, and coordinating alert bulletins.

J.3.2 Database Requirements

The database in Carousel stores user logins, settings and the lists of bulletins. The database can be hosted on the Web Server on a separate server. The database can be installed via a .sql script provided with the Carousel Framework installer. Carousel can use Integrated or SQL authentication to log into the database server.

The requirements are:

- Microsoft SQL Server 2008 or higher. Express is acceptable.
- Microsoft .NET Framework 4.0

J.3.3 Install FrontDoor and Carousel Framework on the web server.

Step 1: Install FrontDoor. You may change the default install directory in this installer.

Step 2: Install Carousel Framework. Again, you can change the install directory.

The installers attempt to attach the databases to the local database server. If SQL Server is not on the web server, the installers will error. Ignore the errors.

J.3.4 Installing the database on a database server.

Step 1: Copy the files "`FrontDoor50-CreateDB.sql`", "`Carousel50.sql.sql`", and "`FrontDoor50-PopulateDB.sql`" from "`[Install Dir]\Database\Scripts`" to the database server.

Step 2: You will need to modify the "`FrontDoor50-CreateDB.sql`" and "`Carousel50.sql`" files! Open each file and change the "`CREATE DATABASE`" command to the physical path you want the database file created at. There is one path for the '`.mdf`' file and one for the '`.ldf`' file.

Step 3: Using your management console or oSql run the "`FrontDoor50-CreateDB.sql`" script

Step 4: From the command prompt run:
"`C:\Windows\Microsoft.NET\Framework\v2.0.50727\aspnet_regsql.exe -E -d FrontDoor50 -A mrp`"

This will populate the database with the ASP.NET roles and memberships for the web server.

Step 5: Using your management console or oSql run the "`FrontDoor50-PopulateDB.sql`" script.

Step 6: Using your management console or oSql run the "`Carousel50.sql`" script.

Step 7: Make sure you have a login for the web server for the FrontDoor50 and Carousel50 databases.

J.3.5 Configuring the database login and the web server.

Step 1: Modify the following *.config* files using your favorite text editor. You need to add the login connection string in the <*connectionStrings*> area for the following files:

- "`[Install Dir]\Web\FrontDoor\web.config`"
- "`[Install Dir]\Web\Carousel\web.config`"
- "`[Install Dir]\Services\FrontDoor\TRMS.Services.TimeSync.exe.config`"
- "`[Install Dir]\Carousel\TRMS.Services.Carousel.exe.config`"

Example: Connection string login into a remote server with SQL authentication might be:

```
<add name="FrontDoorConnectionString" connectionString="Data Source=MyServer;
        UserID=MyUser; Password=MyPwd; Initial Catalog=FrontDoor50;" />
```

Be sure to set all of the connection strings! TRMS.Services.Carousel.exe.config in particular has two related to Carousel, and both need to be updated.

J.3.6 Moving the media directory to another server.

If your media is on a separate network attached storage (NAS) device, configure the media store on the web server by copying the media, verifying the Windows permissions on the new Media directory, configuring the Web UI and Carousel Service to use the new path, configure IIS to use the new path and test it:

Step 1: First, create a mounted share of your remote storage. *Carousel cannot use a network path to reach the Media directory! It must be a mounted share, like* "`X:`"*, not* "`\\MyServer\MyDrive`".

Step 2: Open up Windows Explorer and find the "`C:\TRMS\Web\Carousel`" directory. (figure J.11 on the next page) Your drive letter may be different, depending on the installation directory you chose during installation of Carousel Framework.

Step 3: Open up the mounted share that you created in step 1. Move the Media directory here so that the new path is:

Example: "`X:\Media`", where "`X`" is your mounted share's drive letter.

Step 4: Get the security properties on the new media directory and verify that the Carousel web application pool will be able to read and write to this directory, as seen in figure J.13 on page 294.

The two *.config* files are a little different! Pay close attention to the next steps!

Step 5: Change the following *.config* files to point at the NAS in the `<appSettings>` area:

FIGURE J.11: Carousel's Media Directory

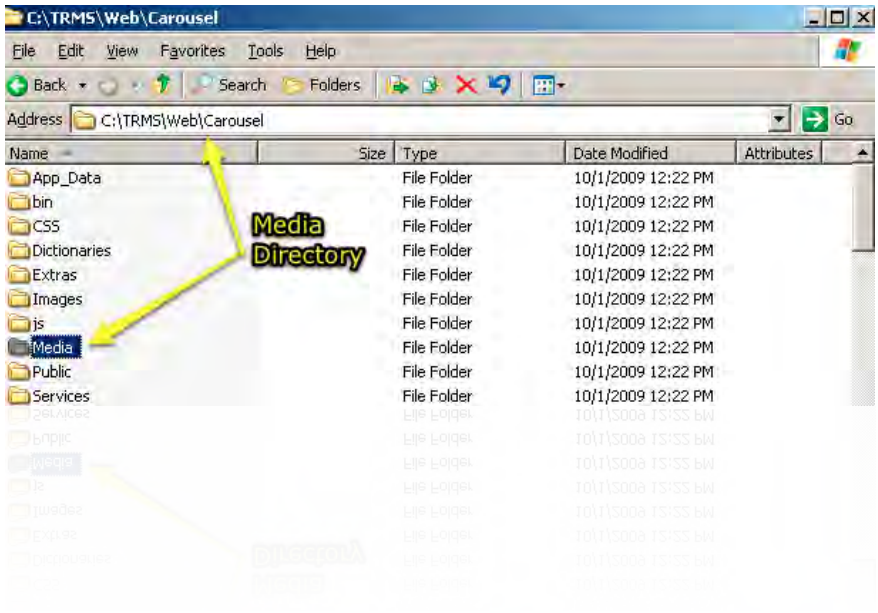
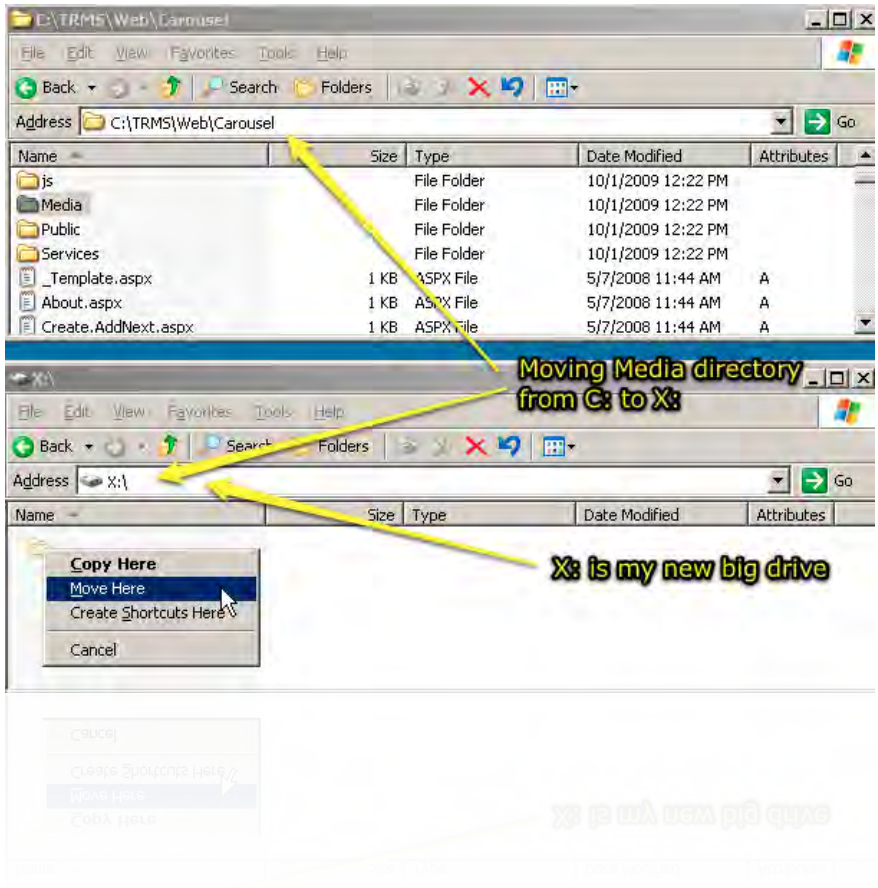

C:\TRMS\Web\Carousel
File Edit View Favorites Tools Help
Back Search Folders
Address C:\TRMS\Web\Carousel
Go
Name Size Type Date Modified Attributes
App_Data File Folder 10/1/2009 12:22 PM
bin File Folder 10/1/2009 12:22 PM
CSS File Folder 10/1/2009 12:22 PM
Dictionaries File Folder 10/1/2009 12:22 PM
Extras File Folder 10/1/2009 12:22 PM
Images File Folder 10/1/2009 12:22 PM
js File Folder 10/1/2009 12:22 PM
Media File Folder 10/1/2009 12:22 PM
Public File Folder 10/1/2009 12:22 PM
Services File Folder 10/1/2009 12:22 PM
Media Directory

FIGURE J.12: Moving Media to a new share.


C:\TRMS\Web\Carousel
Address C:\TRMS\Web\Carousel
Name Size Type Date Modified Attributes
js File Folder 10/1/2009 12:22 PM
Media File Folder 10/1/2009 12:22 PM
Public File Folder 10/1/2009 12:22 PM
Services File Folder 10/1/2009 12:22 PM
_Template.aspx 1 KB ASPX File 5/7/2008 11:44 AM A
About.aspx 1 KB ASPX File 5/7/2008 11:44 AM A
Create.AddNext.aspx 1 KB ASPX File 5/7/2008 11:44 AM A
Moving Media directory from C: to X:
X:\
Address X:\
Copy Here
Move Here
Create Shortcuts Here
Cancel
X: is my new big drive

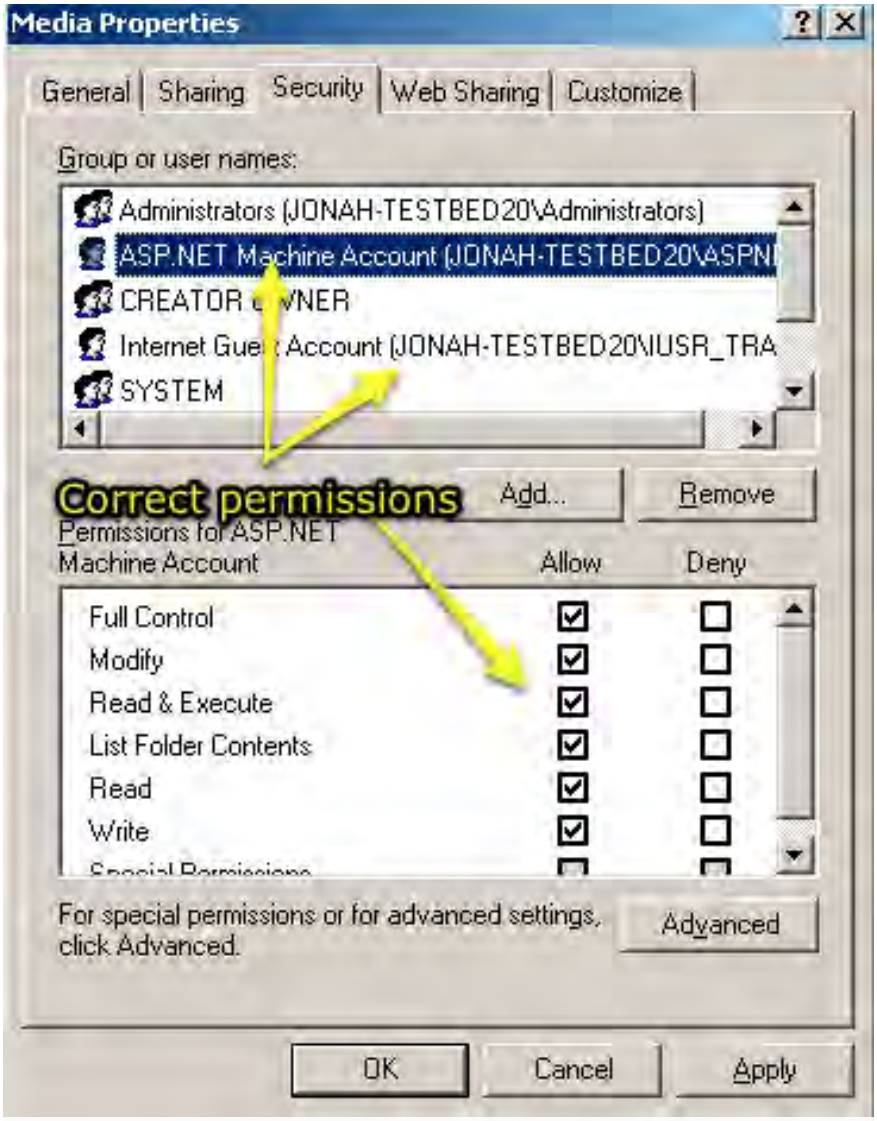


FIGURE J.13: ASP.NET Machine Account needs access to the Media directory

- "`[Install Dir]\Web\Carousel\web.config`"
- "`[Install Dir]\Services\Carousel\TRMS.Services.Carousel.exe.config`"

Step 6: For...

`[Install Dir]\Web\Carousel\web.config`

...find:

```
<!--<add key="MediaPath" value="D:\Some\Other\Path\To\Media\Folder\"/>-->
```

and change it to...

```
<add key="MediaDirectory" value="X:\Media" />
```

Step 7: For...

`[Installdrive]:\TRMS\Services\Carousel\TRMS.Services.Carousel.exe.config`

. . . find:

```
<!--add key="MediaDirectory" value="D:\Path\To\Media" /-->
```

. . . and change it to:

```
<add key="MediaDirectory" value="X:" />
```

. . . where the value of "`X:`" is your new Media directory's path. The service automatically appends the "`\Media`" to the end of it's MediaDirectory value and that is why the paths need to be different.

FIGURE J.14: An example of the *.config* files being changed.

Step 8: Next, restart the Carousel service so that it picks up the new settings. (figure J.15 on the following page)

Step 9: We need to configure IIS to have a new virtual directory that points to the new Media location. We can open up the IIS management counsel, expand the web sites and find the Carousel web application.

Step 10: Right click on it and create a new Virtual Directory. (figure J.16 on the next page)

Step 11: We will make sure to name it "`Media`" (figure J.17 on page 297) and point it at our new media directory path. (figure J.18 on page 297)

Manage Bulletins: My Active Bulletins

Step 12: Next, log into Carousel and go to the *Manage Bulletins: My Active Bulletins* menu. See that the thumbnails for your bulletins appear in the web interface, as you can see in figure J.19 on page 298.

Step 13: Run the Display Engine on one of your Carousel Players and make sure that it caches the new bulletins from your new Media storage.

FIGURE J.15: Bouncing the Carousel Service

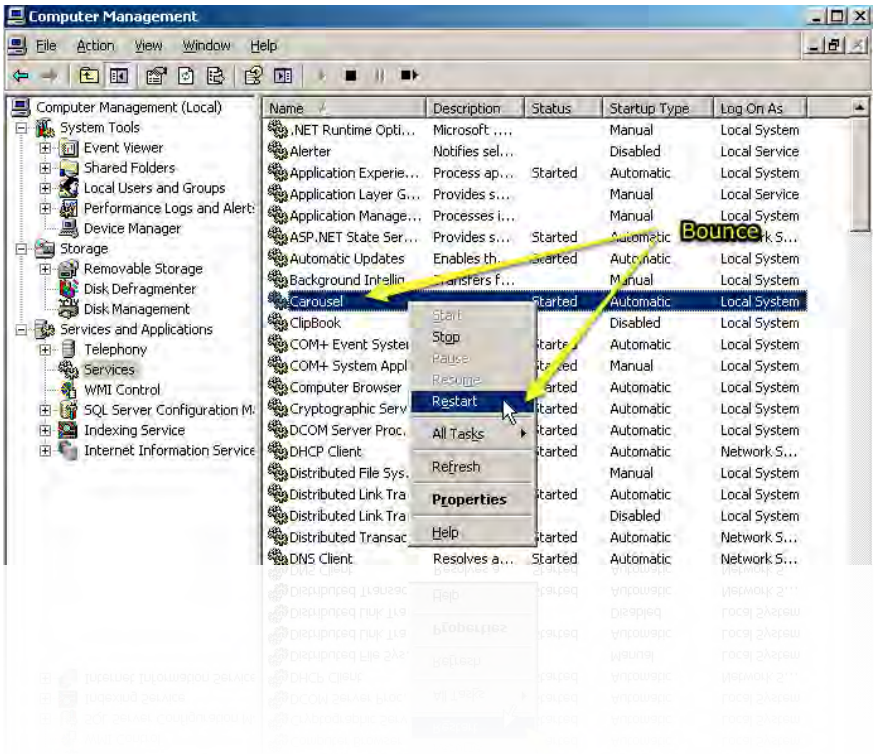


FIGURE J.16: Creating the virtual directory

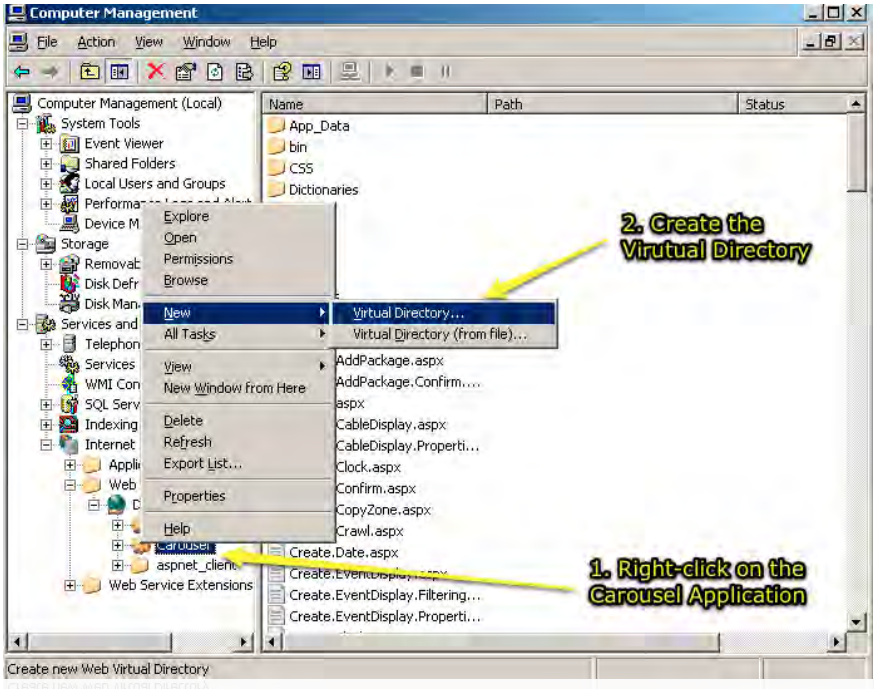


FIGURE J.17: Naming the virtual directory

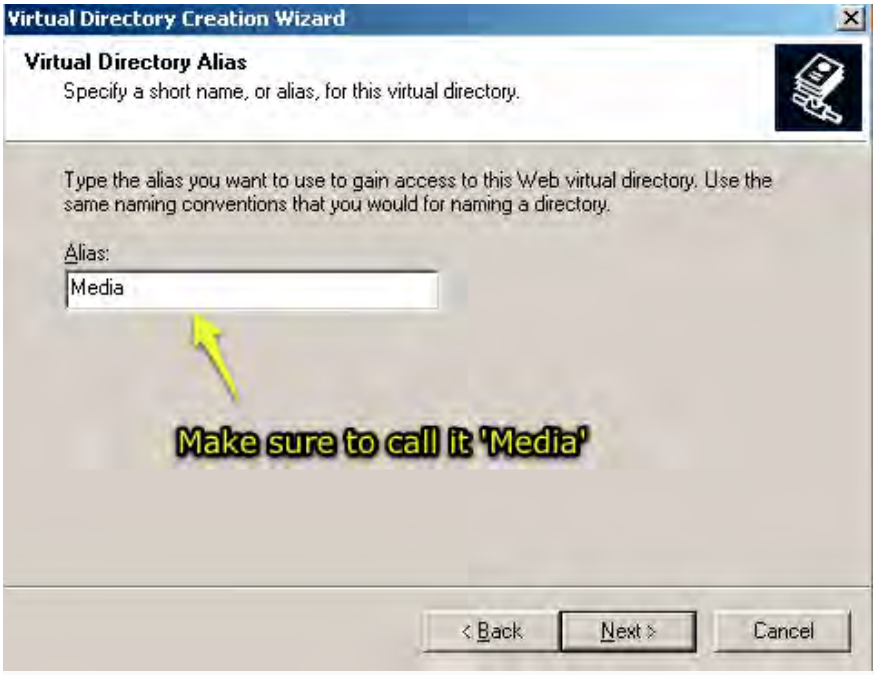
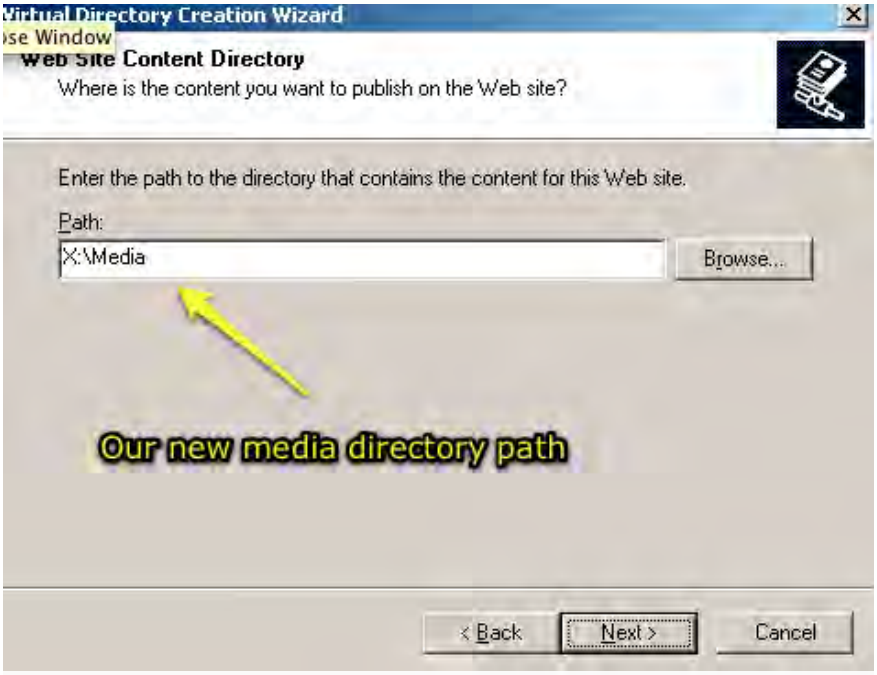

Virtual Directory Creation Wizard
Virtual Directory Alias
Specify a short name, or alias, for this virtual directory.
Type the alias you want to use to gain access to this Web virtual directory. Use the same naming conventions that you would for naming a directory.
Alias:
Media
Make sure to call it 'Media'
< Back
Next >
Cancel

FIGURE J.18: Typing the path to the virtual directory


Virtual Directory Creation Wizard
Web Site Content Directory
Where is the content you want to publish on the Web site?
Enter the path to the directory that contains the content for this Web site.
Path:
X:\Media
Browse...
Our new media directory path
< Back
Next >
Cancel

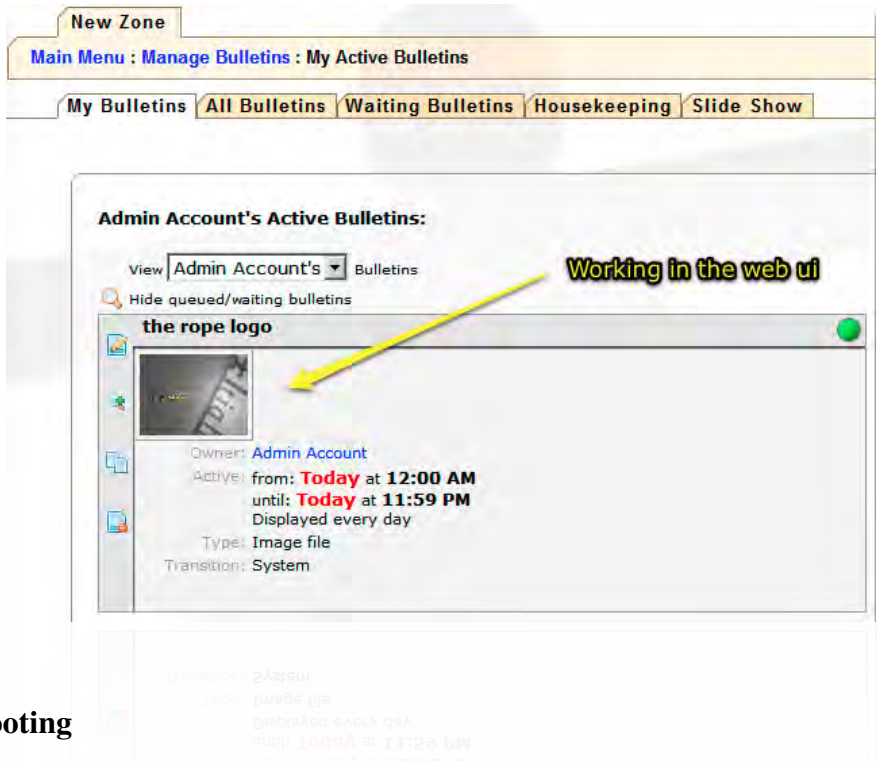


FIGURE J.19: Testing the remote Media storage in Carousel

J.4 Enterprise Troubleshooting

Carousel and its underlying processes must adhere to the security put in place on your network. As such, ensure that the server has sufficient rights to write to disk and communicate on the network if installed on a domain. If needed, the Carousel service itself can be ran under a domain user to allow it sufficient rights.

J.4.1 Could Not Find Stored Procedure

Problem: When you try to login to FrontDoor you're greeted with an error that reads *"Could not find stored procedure 'dbo.aspnet CheckSchemaVersion'."*

Solution: This error occurs because ASP.NET has not yet had it's schemas installed in the FrontDoor database. This generally happens when **Named Pipes** is disabled in the SQL Server configuration. See section J.1.6 on page 285 for the steps needed to enable **Named Pipes**. Once this has been done, uninstall and reinstall FrontDoor first, followed by Carousel Framework.

J.4.2 WebUI Can't Connect To Database

Problem: When you try to login to FrontDoor or Carousel, you're greeted with an error that reads *"A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and that SQL Server is configured to allow remote connections."*.

Solution: This error occurs because of an error in the web.config file for FrontDoor or Carousel. See section J.3.5 on page 292 for information on how to configure these files for a remote SQL server.

ïż£

Appendix K Common Alert Protocol (CAP)

Carousel 6.3 and up support the Common Alert Protocol (CAP). It provides an XML interface for creating bulletins. Using this feature, it is possible to integrate external systems, such as alarm systems, using simple programs developed in the field.

This chapter is not a primer on XML or programming. It is intended for those that are already somewhat familiar with such technology and are seeking to integrate Carousel into data systems.

CAP is implemented by sending a properly formed XML-based command to the Carousel server, which will reply with a JSON hash with any errors and bulletins affected.

K.1 Communications

Communication between CAP applications and Carousel is initiated with a HTTP POST containing raw XML targeted to:

<server>/Carousel/Public/cap.aspx?token=<token>&tags=tag1,tag2

The Carousel server will listen for a *CAPPOST* command to be sent to this address. Upon receiving a well-formed command, the server will process it and return a *JSON hash* response containing any errors and bulletins affected. If you do a GET on the URL above, you can see a form to paste XML into for testing.

The *token* variable in the above address is the security token for authentication. This is stored in the TRMS\Web\Carousel\web.config file under the *CAPToken* key, and is empty by default which disables CAP. Enter a string for *CAPToken* in the web.config to enable CAP, and use this value as your *token* variable when communicating with CAP in Carousel. The *tags* variable determines what Carousel bulletin tags are affected by the incoming *CAPPOST* command.

K.2 Workflow of CAP

First, we find all bulletins on any zone that are tagged with any tag specified in the query string. Next, we look for blocks in the bulletins that have names that match tags in the CAP XML. Specifically, anything under the info tag inside alert will get mapped to a block (i.e. category, severity, etc.). The *eventCode* tag contents get interpreted as a seperate name -> value mappings (i.e. alertCategory -> Emergency Alert). Each value in the mapping gets inserted into a text block's text or web picture block's URL and then the bulletin gets re-rendered. We then activate the bulletin by setting all of the days in the schedule to be *on*.

If the /alert/info/event or /alert/info/description values are "CLEAR", we will deactivate the bulletin (by setting the days all off).

Care should be taken with bulletins that are intended to be used for CAP so that they are tagged properly. This means all of the days of the week on the schedule screen are unchecked. The CAPPOST page will activate and deactivate the bulletin as required as long as the rest of the schedule says it is still valid.

See below for an example of CAPPOST command XML data.

```
<?xml version="1.0" encoding="UTF-8"?>
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.1">
<identifier>255</identifier>
<sender></sender>
<sent>2011-07-05T17:46:09+00:00</sent>
<status>Actual</status>
<msgType>Alert</msgType>
<scope>Public</scope>
<info>
<category>Safety</category>
<event>Important Alert from UTEP</event>
<urgency>Unknown</urgency>
<severity>Unknown</severity>
<certainty>Unknown</certainty>
<audience>127.0.0.1</audience>
<eventCode>
<valueName>alertCategory</valueName>
<value>Emergency Alert</value>
</eventCode>
<headline>Important Alert from RSAN</headline>
<description>Test Test Test Test</description>
</info>
</alert>
```

Appendix L Troubleshooting

Common problems and questions from our support department are compiled here for easy reference.

For the most up to date information, checkout our web site for knowledge bases, live chat, video helpers, documentation, and more!

L.1 Carousel Bumper Page

Question : How do I get rid of this awful (figure L.1) page?

FIGURE L.1: Disabling the Bumper Page

Answer : This page is a default bumper page set in the system to take the place of a "blank" screen if there are no bulletins to be displayed. Also, by default, this bulletin is set to be shown once per 'loop' in the bulletin cycle. Please see section 10.3.3 on page 93, *Bumper Graphic* for more information about disabling or replacing this page.

L.2 No Zones Defined

Question : How do I define my zones?

Answer : Follow the instructions in section 7.3.2 on page 64, *The Channel Layout Form*.

FIGURE L.2: No Zones Defined Error

L.3 Not Licensed...

If you get a *NOT LICENSED* message on the Carousel splash screen see section 8.6 on page 79, *Not Licensed Status*.

L.4 DisplayEngine Hidden Configuration Options...

There are a few configuration options for the carousel DisplayEngine that are not on the **Configure...** screen. These settings are in the **TRMS\DisplayEngine\CarouselDisplayEngine.** file. The config file can be edited with your favorite text editor.

```
<add key="RestartOnDisplayError" value="false" />
<add key="SlowZoneUpdate" value="false" />
<add key="BulletinFailSafe" value="60" />
<add key="BypassProxy" value="true" />
```

RestartOnDisplayError : Sets the behavior ofthe Display Engine when an exteral display causes the graphics card on the Carousel unit to error. This can happen when an HDMI monitor is turned off or goes to sleep. Set this to true if your DisplayEngine shows black after a monitor is turned off and back on.

SlowZoneUpdate : This setting causes the Display Engine to not update the zone layout settings as often. It is used for extreme bandwidth sensitive networks.

BulletinFailSafe : This is the maximum number of seconds that the between bulletin list synchronization from the Diplay Engine to the server, agian used for extreme bandwidth sensitive networks.

BypassProxy : By default the Display Engine is instructed to bypass proxy servers for to avoid caching problem, this behavior can be overrode.

Appendix M A Not-So-Short Introduction to Networking

If you are not a network person by profession or hobby, this paper may serve as a helpful guide in understanding some basic concepts. We overview networking rules, conventions and issues. This guide was written with Tightrope installations in mind, but the basic concepts are universally applicable.

None of the information in this paper should be considered complete. Many difficult concepts are glossed over and oversimplified. Our goal is to provide you with useful information that may lead you to accomplishing your goals—or at the very least communicate those goals to someone who can do it for you.

M.1 The Basics: What is a Network?

A computer network is a group of computers connected by hardware and software that are able to *directly* communicate with each other.

The word 'directly' is emphasized in our opening paragraph because it is possible for computers to communicate even when they are on two different networks, but that ability does not make their networks into a single entity—they are two different networks. It is important to limit the definition to "direct communication" because we need to differentiate between the meaning of a single network and a group of networks. Often, people say 'network' when they mean "wide area network" (WAN), which is a term used to describe several networks that are interconnected and under the control of a single organization. Computers can communicate with any other computer on the WAN, but they must do so through the use of networking equipment that is able to route traffic *between* networks within the WAN. This is not the same as "one big network". Some will try to emphasize that you are speaking about a single network by using the term "local area network" (LAN), but this is no more precise than just using the word 'network'. In this document, "local area network" and 'network' mean the same thing. Much of the text clarifies the mechanics of these difference, so if you don't "get it", that's ok; you can come back to this later. :)

On most networks, all computers are considered peers. That is, there is nothing inherently special about a server in the network closet that makes it different than the computer sitting on your desk. It is the roles that we assign these computers that make them special.

These 'roles' are called *services*. They include web servers, email, file servers, time synchronization, security authentication and many others. There are thousands of services that may be provided on any network.

99% of local area networks are using Ethernet hardware and a software networking package[1], which is usually included with the computer's operating system.

The key to understanding a network is to see it as one group of computers that is wired together both:

[1] . . . which is called a *stack*. . .

physically : All of the computers are wired together with network cabling and can electrically 'get' to each other.

logically : All of the computers are configured so that their network software represents them as "on the same network".

Physical connections are straightforward. In most networks today, you have Ethernet cables (CAT5e) that connect computers to an Ethernet switch, which is a box that is able to send networking singles between computers in an efficient way. When everything is connected to the same switch, you have a simple network that is just begging for the connected computers to be configured in such a way that they can communicate with each other.

The logical side of networking refers to the protocols, software and configuration that make up a network. In the post Internet Boom, almost every network in existence runs on an Internet Protocol (IP) network. IP networks have four basic components that are within the scope of this article[2]. The rest of this section is devoted to those components.

M.1.1 IP Address

If you know one thing about networks, it is probably the concept of the IP address. On any network, every network interface[3] must have a unique IP address[4]. An IP address is a number that, for the sake of readability, is broken up into four numbers separated by a period (.). Example: "`192.168.1.1`".

Each of the four numbers must be between 0 and 255. When we speak of a computer's IP address, it's important to understand that there are many addresses that are not considered valid because they are reserved for special purposes. That is, "`0.0.0.0`" and "`255.255.255.255`" are examples of addresses that are not considered valid. "`127.0.0.1`" is another special address called the *loopback address*. It represents the local computer and is effectively saying, "go to me and ask myself for something[5]".

Another important concept to understand is that in an IP network, the IP address serves two purposes. The first purpose is to identify the network and the second is to identify a specific network interface on that network.

When we say "identify the network", we are alluding to the fact that the complete range of possible IP addresses are always segmented into smaller networks. That is, no valid network has an IP address range of 0.0.0.1 to 255.255.255.254[6]. We break them up into smaller chunks for manageability reasons.

How do we determine the part of the IP address that signifies the network and the part that identifies a specific computer on that network? We do that with the...

[2] ... and a million that lie outside it. :)

[3] The term *network interface* is more precise than saying *computer*, because a computer might have more than one network card or the connecting device might not be a computer. *Network Interface* covers any host on a network.

[4] This is probably true for every scenario that you will come across. There are special cases where a computer might have the same IP address on the same computer, usually for redundancy or performance reasons in high capacity installations. We mention it in a footnote so that when a network nerd corrects you on this point, you can say, "Yeah, I know."

[5] One of my close friends, and one of the biggest nerds that I know, has a bumper sticker that reads, *"There's no place like 127.0.0.1"*. It is at Thinkgeek.com if you want your own.

[6] 255.255.255.255 is special, so we don't include it in the standard IP address range.

M.1.2 Subnet Mask

Put simply, the subnet mask's job is to split an IP address into a network address and a host address. This helps networking software determine when an address falls within the local network and when it does not.

Like an IP address, a subnet mask is a group of four numbers separated by a period. Each of the four numbers must always be between 0 and 255.

The subnet mask is a bit mask. Since computers think in "0's" and "1's", it can quickly take this number and *mask* it over the IP address. Whenever there is a "1" in the mask, it associates the corresponding bit in the IP address as a *"network address"*. When it sees a "0" in the subnet mask, the computer thinks *"computer's address"*.

Examine the table below. We can see how a computer is able to separate the network address from a specific computer's address by using a subnet mask.

	Decimal	***Binary***
IP Address	192.168.1.1	11000000.10101000.00000001.00000001
Subnet Mask	255.255.255.0	11111111.11111111.11111111.00000000
Network Portion	192.168.1.X	11000000.10101000.00000001.XXXXXXXX
Address Portion	XXX.XXX.XXX.1	XXXXXXXX.XXXXXXXX.XXXXXXXX.00000001

After reading the last four paragraphs, you should be very confused. If not, you probably don't need to read this paper. :) So let's explain things a little further.

As an example, that is technically illegal, a subnet mask of "0.0.0.0" would define any computer IP address as being within your network. Generally this is not a number that you will ever see. Conversely, "255.255.255.255" would define a network with exactly one computer on it[7]. As the example in the previous table shows us, "255.255.255.0"[8] would mean that all computers that shared the first 3 numbers of their IP address would be on the same network.

If you are interested in the math, networking software performs a bitwise AND operation on the IP address of the local network interface and the subnet mask. It then performs the same operation using the destination's IP address to determine if they are within the same network. If not, the network communication is sent to the network's router. For a detailed explanation of subnet masks, see Wikipedia.org.

The bottom line is that the purpose of the network's subnet mask is to help computers decide if a communication request is within the network by separating an IP address into two parts: a network address and a host address. If a communication request does not fall within a computer's network, we involve the...

M.1.3 Network Router

A network router, also known as the *default gateway*, sits on the edge of your network and handles traffic *between* networks. When you are at your computer

[7] Sometimes this value is used when you are using an old-time modem.

[8] All of our examples are with either "255" or "0". Other numbers are possible, but not any number. Specifically, if you read a subnet mask in binary from left to right, all of the "1's" would be packed together followed by all of the "0's". There may be no "0's" before any "1's" in a valid subnet mask.

and you ask for a computer that's not in your local network, that request is sent to your router. Using magic[9], your router figures out how to get to the computer that you are asking for and the connection is complete. If it cannot, then you get an error.

Incidentally, if your network did not have a router then any request that didn't fall within your subnet would be considered unreachable.

M.1.4 Domain Name System (DNS) Address

When you type an address into your web browser, you typically type a name, such as "www.trms.com". Imagine if we had to remember the IP address for every site that we wanted to visit!

DNS is a service that is able to resolve names to IP addresses. When your computer gets a name instead of an IP address, the computer listed as the DNS server will be asked to translate it.

If you have spent any time with your web browser, you'll notice that all of the names that you type end in a common suffix, like '.com', '.org', '.uk', etc. These are called *top level domains* and are governed by various organizations, depending on the specific domain in question.

The name that comes directly before the last dot (.) is called the *second level* domain. Examples of these would be "*whitehouse*.gov" or "*trms*.com". Second level domains are managed by various domain name registration companies including Network Solutions and Register.com. If you want to reserve one for your organization, you simple go to one of these companies, search for an available name and pay them some money. When you're picking a name, you can choose the top level domain that is most appropriate for you, naming yourself "`myfantasticname.org`" or "`myfantasticname.com`". You can even be both, if the names are available.

Some top level domains work differently than standard ones like "`.org`" and "`.com`". For example, not just anyone can get a "`.mil`" address as those are reserved for the United States Military. In the United States the "`.us`" works a bit differently for schools in that second, third level and fourth level domains are used to drill down to a specific district. For example, the Bloomington school district in Minnesota is at "`bloomington.k12.mn.us`". The fifth level domain is managed by the school for internal domains, computers and services.

If you have your own domain name, you or your organization is responsible for managing it. You have the responsibility to designate a DNS server that will manage any requests that are sent to your new domain. Your DNS server tells the world, "When people look for www.myfantasticname.org, it is at *this* IP address."

Most often, when you type an address into a web browser, there are three parts to an address, like "`www.trms.com`". The "`www`" in that address is the *third level* domain. Any domain beyond the second level domain is managed by the organization. They are used to designate specific services or computers within an organization's network. As an example, your computer on your desk is most likely named with a third and possibly fourth level domain, depending on the complexity of your network.

[9] There is a lot of 'magic' in this document, because we can't cover everything.

Domain levels are like a tree where the top level is the trunk and each subsequent level is a branch that comes off of the previous level. The highest level domain might be considered the leaf, which represents a service or a specific computer. There can be any number of levels to a domain. See figure M.1 for an illustration of domain levels.

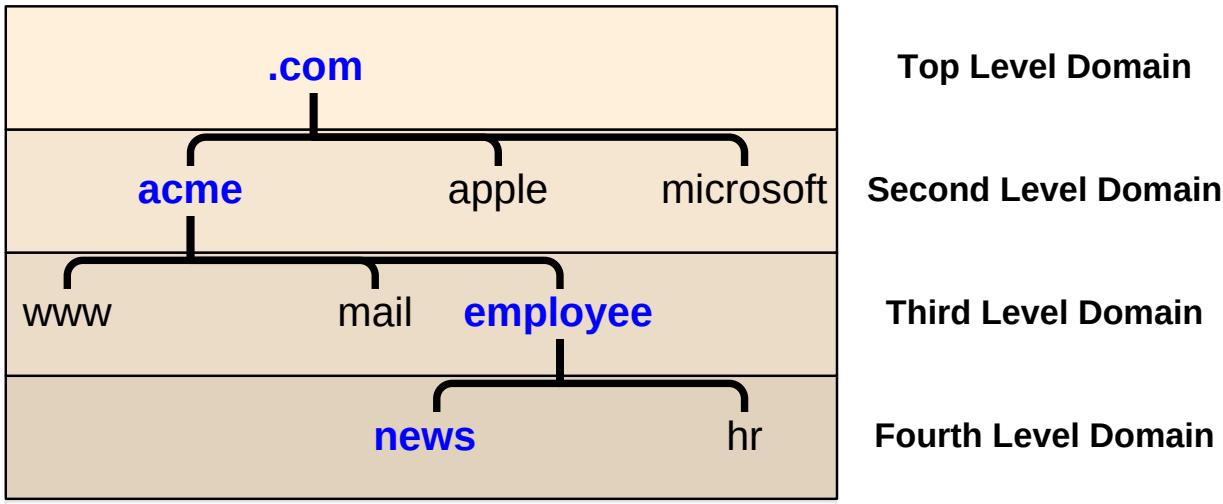


FIGURE M.1: The above example illustrates how domain names are structured, where each level drills down into a specific service or computer. To get to the "`news`" computer, you would use the "`news.employee.acme.com`" domain name.

When you refer to a computer's name, you might say "`news`" or be more specific and say "`news.employee.acme.com`". The full name is known as the *fully qualified domain name*.

Domain levels higher than the second are particularly interesting to Tightrope customers who are operating within an established network, as they may provide a means of addressing your server even if there is already an existing one. In fact, this is how Tightrope operates its demonstration site, which is a full-blown Cablecast and Carousel system. If you go to "`www.trms.com`" you get our corporate web site. If you go to "`demo.trms.com`" our network hardware and configuration is able to redirect you to the demonstration system. We will explore this topic further when we talk about firewalls and port forwarding.

M.1.5 Summary of Basic Network Concepts

All computers on a network must have an IP address that is unique so that other computers can find them. All computers on a network will have the same subnet mask, which is just a number that defines the size of the network. Using math, the networking software on your computer is able to figure out if an IP address is inside or outside your network based on this subnet mask. If it is outside the network, your computer will forward your request to the router on your network that will, using magic, forward it off to the computer with which you are trying to communicate. If there is no router defined, then you can only communicate with computers within your network.

DNS servers interpret friendly names that humans understand, like "www.trms.com", into numbers that computers understand, like "64.122.237.46". If there is no DNS server defined, then you will have to use IP addresses and not names.

M.2 Dynamic Addresses and DHCP

Imagine that you are a network administrator for a new organization that just received 500 desktop computers. Your first task is to get these computers on your network. You begin assigning each computer an IP address, subnet mask, DNS and router information. This would be extremely time consuming, but you get it done thanks to your hard work and dedication to repetitive tasks.

Now imagine that it is a year later. Some of these computers have broken and been replaced. Thirty of them got a virus and needed to be rebuilt. You added another 100 computers to one department and got rid of 30 from another...

You can see how time consuming network administration can become when you have to manually enter the networking information into a large number of computers! Enter a magic technology: Dynamic Host Configuration Protocol or DHCP.

DHCP is a service that runs on a network. If a computer is configured to use DHCP, it will seek out this service and automatically configure its network settings using the DHCP service's instructions.

Typically, if your computer uses DHCP it leases an IP address. This means that your IP address can change after a predetermined amount of time. We call these addresses *dynamic IP addresses*. If your computer is sitting on your desk and you use it for email and surfing the web, this is fine. Nobody cares about your IP address because nobody relies on your computer for any network services.

Dynamic IP addresses are a problem if your computer does have services that people need to find. For example, a web server[10] needs to be at a fixed IP address because people need to know where they can find it.

Using DHCP does not have to mean a dynamic address. DHCP can be configured to make a specific computer's address static. There are other features of DHCP that are worth exploring. Check out Wikipedia.org for detailed information about it.

The bottom line is: DHCP is a service that automatically configures networking on a computer and usually gives it a dynamic IP address. Desktop computers are generally configured with DHCP and servers, like those from Tightrope, can only use this service if the address it gets is static and not dynamic.

M.3 TCP and UDP Glossed Over

Within a network, communication is happening. Computer A is saying something to computer B and they both must agree on how that communication is established and negotiated. There is a protocol to it all, like a handshake when you meet someone new.

[10] ...like Tightrope's Cablecast or Carousel computers...

There are two primary methods for communicating on IP networks that are within the scope of this paper: TCP and UDP.

TCP stands for Transmission Control Protocol. We don't care why it's called that, but we do care that TCP is the most common way that two computers will communicate on a network. It is the TCP in TCP/IP networks. TCP is a connection-based protocol that is able to guarantee proper communication between two computers. It is a reliable stream of data that is guaranteed to reach the destination with the same data in the same order[11].

We say that TCP communication is *connection-based* because before data is transmitted, a connection is established. Just like picking up a telephone to call your neighbor, communicating with TCP means that you establish the connection first, then you begin communicating. When you're done 'talking', you hang up, or drop the connection. Because there is a constant connection, the two communicating computers are able to monitor the packets of information, ensuring their correctness and that they arrived. The down side is that these connections have a significant amount of overhead that each communicating computer must deal with.

By contrast, imagine that you are leaving your office and before you shut the door you yell out, "Bye! Lock up before you leave!" Did anyone hear you? Who knows!?! You left before you got a response.

UDP is much like yelling in the dark. It stands for User Data-gram Protocol and using this method, the computer sending the data packages the information into a data-gram and sends it into the network. You have to rely on *hope* that it will get to its final destination[12] because Unlike TCP, UDP does not require a connection before communication can occur. Furthermore, it does not make any promises about "if", "when" or "in what order" each UDP message will arrive. If a UDP data-gram doesn't make it to its destination, your networking software will not return an error.

UDP data-grams usually contain a return address so, if a response is expected, the computer that receives the data-gram knows where to send it.

UDP has very low overhead and is therefore very popular to use for services where success does not need to be guaranteed, like synchronizing your computer's clock or streaming audio on a Voice over IP (VoIP) call[13].

We talk about these two communication types because there are important limitations when dealing with UDP and network address translation, a topic we explore in section M.6 on page 313, *Network Address Translation*.

M.4 Network Ports

As we learned a couple of sections ago, every computer on a network must have a unique IP address. It is kind of like a temporary serial number in that it identifies one specific computer on one specific network.

[11] But not necessarily immediately, as it uses retransmission to achieve those guarantees.

[12] Most services that use UDP, such as DNS, implement their own retransmission strategy, so it's a bit more complicated than "yelling in the dark". :)

[13] If a chunk of audio doesn't arrive in the right order, the receiver can buffer it or drop it since there is no time to retransmit. In VoIP, low latency is much more important than complete accuracy.

But there are many things to do on a network and they can all happen at the same time! We may know where a computer is, but how do we address the service that is on the computer that we want?

Think of a cable box. A cable box sits on top of your television and it is addressed by your cable company using its serial number (IP address). When you turn your TV on and flip through the channels on your cable box, you receive different television shows (services) from the channels (ports) that your cable company provides.

Networks are similar in that communications are handled on ports, which are like a channel. When you ask for a web page, you basically say, "Hey computer, I need to ask port 80 to give me your home page and send it back to me at IP address 208.40.80.2 on port 51,589", where 51,589 is any arbitrary port number that your computer has available. The server responds back with, "Hey, so you want to talk?" Your computer says, "Yup!". The connection is then established[14].

Some port number assignments are governed by The Powers That Be[15]. Port 80 is HTTP (a.k.a. the web), port 21 (both UDP and TCP) is FTP, mail is port 25—there are thousands of services that are available on a network. Some are famous and are always expected on a specific port. Others are arbitrarily assigned by their designer and may conflict with someone else's choice.

There is a lot more to ports and how they work. For our purposes, it's enough to know that IP addresses are used to locate computers while ports are used to locate services on those computers and to facilitate multiple connections between different computers at the same time.

It is important to understand ports because the topic will come up when we explore NAT and firewalls in later sections.

M.5 Private and Public IP Addresses

There are hundreds of millions of computers and hundreds of thousands (if not millions) of networks in operation throughout the world. The geniuses that invented the Internet back in the 70's never imagined that everyone and their mom would be using it. The result is that there are not nearly enough IP addresses to accommodate the number of devices that are using the Internet.

To alleviate this problem, The Powers That Be[16] decided to reserve three blocks of addresses for private networks:

- 10.0.0.1 - 10.255.255.255
- 172.16.0.1 - 172.31.255.255
- 192.168.0.1 - 192.168.255.255

[14] Nerds call this process *The Three Way Handshake* or *SYN-SYN/ACK-ACK*, which reminds this author of the movie *"Mars Attacks!"*
[15] The Internet Assigned Numbers Authority
[16] Again, The Internet Assigned Numbers Authority

History dictates that not only are these private address blocks differently sized, they are also segmented differently. For example, the "`192.168.x.x`" block is most often represented as 256 different networks with 255 IP addresses each, with a subnet of "`255.255.255.0`". Since these addresses are private, there is nothing written in stone about how you segment your network. It's just what other networking types would expect to see when they look at your network configuration.

Someone that decides to use these IP addresses can do so without any coordination with an outside organization. That is because by their very definition, routers on the Internet will not view these as addresses that they can route. That is why they are called *non-routable* or *private* IP addresses.

Addresses that are outside the range of those listed above are considered *route-able* or *public*. If you arbitrarily choose a public IP address and then connect it to a router which is connected to the Internet, you will create problems and your network will not work correctly.

People creating networks in their own organization almost universally use private IP addresses. Back in the early days of the Internet, this was thought of as a second-class solution. Now reality has set in, addresses are scarce, security concerns abound and we all have private IP addresses on our desktop computers[17].

The trouble with a private address is that you cannot communicate with anyone outside your network. If I try to go to "`www.trms.com`" and my computer uses a private IP address, the remote computer will not know where to respond to because the routers that are in between our two computers will not allow traffic to go back to a private IP address.

If this is true, then how is it that we all have private IP addresses and we are still able to communicate on the Internet? That question leads us to our next section...

M.6 Network Address Translation

Network Address Translation (NAT) is a magic technology that makes our Internet possible. Without it, there would be a lot fewer computers on the Internet and that would be a Bad Thing. But what is NAT?

NAT is a feature of a router[18] that enables computers inside your network that are using private IP addresses to communicate with computers on the Internet.

When you ask for something that is outside your network, your computer goes to the router. A router using NAT, in turn, completes the request *on your behalf*. The destination computer then establishes a connection with your router and your router is responsible for marshaling the packets back to you.

Your computer thinks that it is communicating directly with the destination computer and the destination computer thinks that it is talking to you from your router's

[17] For fun, open up a command prompt on your desktop computer. Type "`ipconfig`". Chances are that your address falls within one of the ranges listed above!

[18] You'll remember that a router routes IP traffic to remote computers. A router is at the edge of your network and links it to other networks.

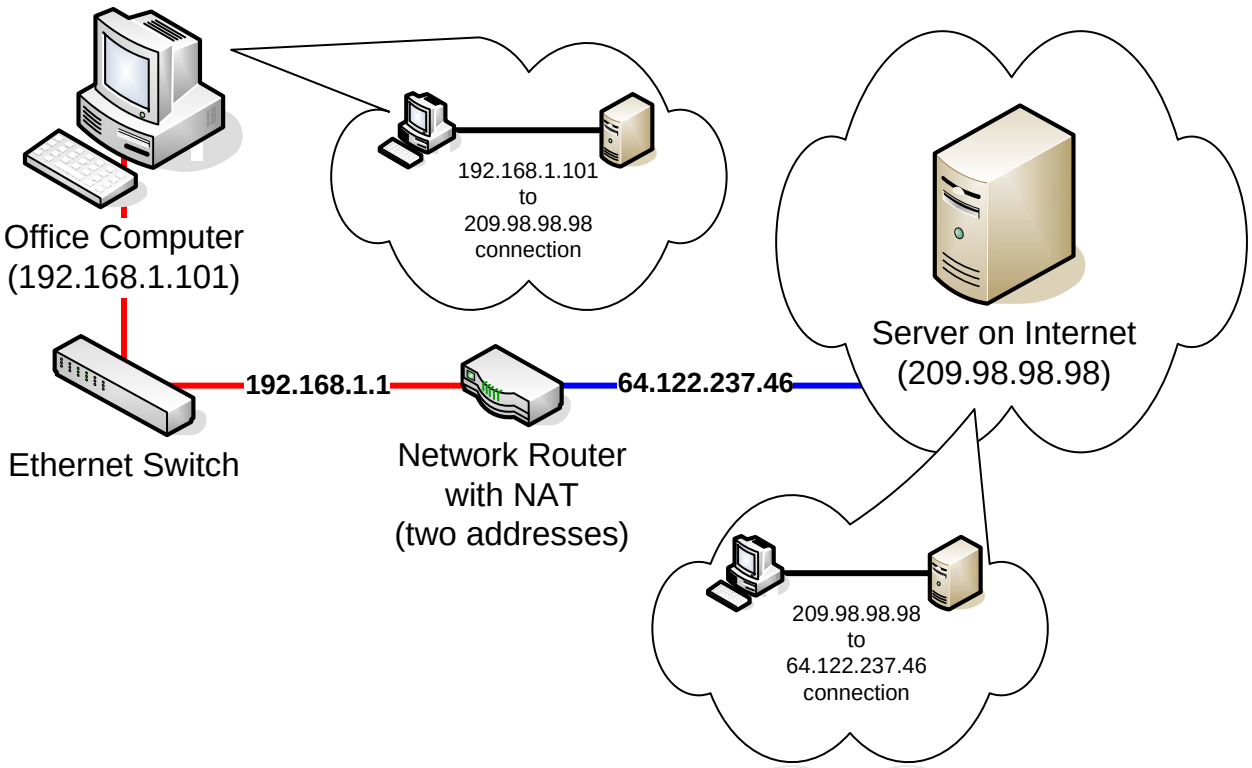


FIGURE M.2: A router with NAT will use at least two addresses. In this example they are ("`192.168.1.1`") for the local address and ("`64.122.237.46`") for the public IP address. Local computers address it from the "`192...`" address. Computers on the Internet 'see' your computer as though it has the "`64...`" address. When you communicate with a computer outside of your network, your router uses NAT to make the connection on your behalf.

address[19].

Because TCP communications are based on a connection and that connection is basically established by information that is stored in the packets of data that are a part of that communication, NAT works[20].

NAT does not work very well with UDP communication because there is no connection, and thus no handshake with which to base future communications upon. Fortunately, some newer routers are able to make educated guesses about where incoming UDP data-grams should be sent[21] based on outgoing UDP data-grams that your computer recently sent. Educated guesses and occasional failures are an accepted part of UDP-over-NAT because the spirit of UDP is to be unreliable.

[19] Incidentally, the destination computer sees you as your router, but if they're aggressive enough, they can mine your private IP address out of the packet. That's how online poker games know if you're cheating! :)

[20] ...mostly. :) There are times when NAT fails even with TCP. Examples include certain kinds of FTP, MSN messenger file transfers and others.

[21] ...using a feature called UDP NAT Traversal

Despite the modern UDP-enabling features of NAT equipped routers, there are many administrative and protocol headaches associated with NAT. Since NAT came after the design of the Internet, it wasn't a part of the underlying design of IP networking. As a result, it violates basic assumptions embedded into the design of the Internet to accomplish its amazing feats.

It is for this reason that we all look forward to a day when a new version of IP networking, called IPv6, is able to finally retire the current one.

The key thing to remember about NAT is that there are two connections: you with the router and the router with the destination. The router makes a connection *on your behalf* and forwards all return packets back to your computer. For the most part, it works just like if your computer were directly connected to the destination computer.

M.7 Firewalls

A firewall is a device or a feature on a router that is able to block specific IP traffic based on a set of rules. Firewalls were traditionally installed on the edge of your network, but have become an important feature of operating systems and software firewalls are now found on many desktop computers.

To understand the significance of firewalls, we need to acknowledge a troubling fact: *all non-trivial computer systems have bugs*. It doesn't matter what platform you operate on or if you are up to date with your "Microsoft Patches". There are bugs in your system and many of them can be exploited to gain access to your network resources.

One of the central purposes of a firewall is to block access on your network so that bad people can exploit fewer bugs. :) Why expose a service to the Internet that might be a "way in" when you are not even using it? In fact, it doesn't even need to be a bug to allow access. What happens if you have a web server running on your computer that isn't configured properly? It is just waiting for someone to "configure it for you".

Firewall rules may be set for incoming traffic and outgoing traffic. Incoming traffic refers to traffic from outside the network coming into your network. Outgoing traffic refers to requests made from within your network to the outside. Incoming rules help protect your computer from attacks. Outgoing rules help protect everyone else from your computer should it fall victim to a virus or hacker.

The most common type of rule that a firewall will follow is a port rule. These rules simply block traffic, either incoming or outgoing, on a specified port. For example, your firewall may block all traffic on TCP port 23, which is commonly used for the telnet service.

Other rules might be based on traffic that comes from specific IP addresses. Your firewall may be configured to block all incoming traffic on port 23, except when it comes from an IP address that is from a remote location within your organization.

M.7.1 Dire Warning About Firewalls

Many people view a firewall as *the answer* to their security issues. They are not. In fact, firewalls are really just a small (but important) part of an overall security strategy.

Firewalls do not address the human elements of security, like 'phishing' scams and viruses that come through email attachments. Furthermore, they do not stop attacks on the services that you do expose on the Internet.

Also, there is something called the "chewy middle" of your network that can completely negate a firewall's effectiveness. This is where someone within your network shows some initiative by installing a $40 wireless access point and provides anyone within a reasonable proximity to your network full and un-encrypted access to the inside.

M.8 Port Forwarding

Port forwarding is a feature of a router that is typically used in conjunction with NAT and firewalls. This feature forwards incoming traffic on specified ports to addresses that are inside the network. An example of port forwarding might be, "Forward all incoming traffic on TCP port 80 to the computer at "`192.168.1.3`"".

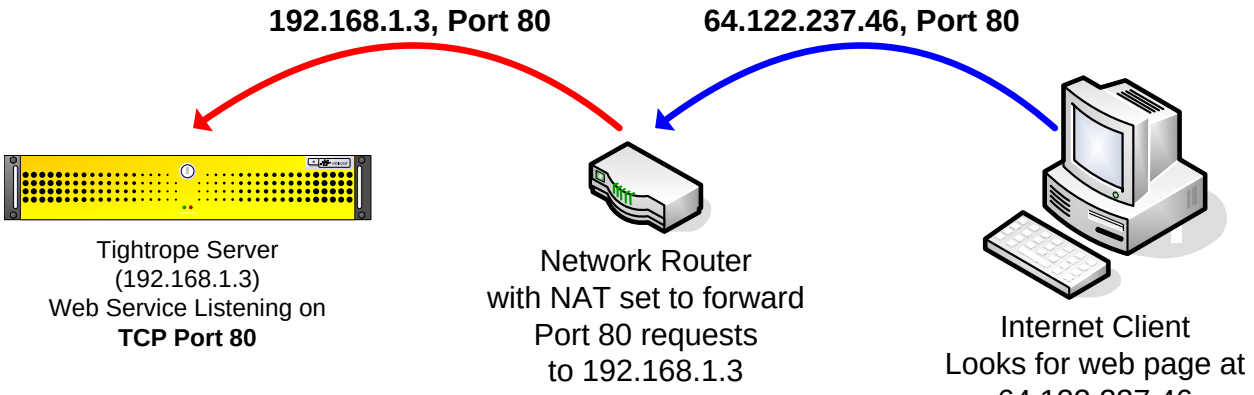


FIGURE M.3: In this example, a computer on the Internet is looking for a web site that you are hosting behind a router configured with NAT and port forwarding. It looks for the site at your router's external IP address and the router forwards that request to your web server.

Port forwarding is at the heart of many networks that provide services on the Internet. It is a fantastic way to partially shield a computer behind a firewall while allowing specific traffic through to services that are running on that computer.

M.9 Virtual Private Network

A Virtual Private Network (VPN) is a method of extending a private network to computers that are located on a remote network through the use of a public networking infrastructure. When you use a VPN from home to get into your work's

network, you are making a connection *on top of* your Internet connection. You are, in effect, dialing into your work's network over the Internet.

This new connection is an encrypted link that effectively joins your home computer to your work's network. This connection includes its own IP address, subnet mask, DNS address, etc. It is a new connection in every sense of the word. Your home computer now has all of the rights and privileges that you would normally have if you were on your computer at work. Typically, this means that you can print to a printer at work, see all of the network resources that are normally available, etc.

Incidentally, we say that VPN is a tunneling protocol, in that you tunnel through the Internet and into a remote network. VPN wraps all of your communications into encrypted packets and unwraps them at the "front door" of the network that you are accessing.

M.10 How Do I Access Cablecast or Carousel From Home?

This is the most common sales and support question that we get at Tightrope Media Systems. Because our products are web based, people assume that they will be able to access them from home. This assumption is correct, provided the network is configured to let it happen!

There are three ways to gain access to your Cablecast or Carousel system from the Internet, each with their own security and accessibility tradeoffs.

M.10.1 Option 1: Hang It Out On the Internet

If you give your computer a public IP address, people will be able to access your Tightrope server. Using this method, you will not only be able to update your system, but others will be able to access the public web interface of Cablecast and Carousel, giving them the ability to view messages and see your Cablecast system's schedule.

The down side is that your server is hanging out on the Internet, ready to be infected with the latest worm or controlled by the next bored teenager.

Because of the insecurity of this option and the relative ease of the alternatives, security professionals suggest that you seek alternatives to exposing your servers directly to the Internet.

M.10.2 Option 2: Use Port Forwarding

The most popular method of putting your Tightrope server on the Internet is to use port forwarding. Your server sits inside your network on a private IP address and traffic that comes in on a specific port is forwarded to your server.

The upside to this configuration is that any type of access that you need on your Tightrope server can be accommodated, including anonymous access to the system's public web interfaces.

On an existing network, this configuration might be difficult to accomplish because of security concerns and existing configurations. Specifically, if your network administrator forwards a port to your Tightrope server, there is still no guarantee that the server will not become infected or compromised. Once it is compromised, the rest of the computers on your network are in jeopardy.

The most effective way past this obstacle is to place your Tightrope server inside your network's DMZ, which actually does stand for Demilitarized Zone. A DMZ is a tiny network with a firewall on either side. One firewall separates the DMZ from the Internet and the other separates the DMZ from the internal network. That way, if your Tightrope server is infected, only the computers within the DMZ are at risk.

The second obstacle is that your network may be using the port that you need. There are three ways around this problem:

1. Use a new public IP address for your Tightrope servers. This will eliminate the port conflict because your server will be the only computer using that port on that address.
2. Use a firewall that supports named forwarding and add a DNS entry for your Tightrope system's web server. That way, if someone is looking for "`carousel.mydomain.org`" the firewall/NAT server will forward them to the Carousel machine instead of your main web server.
3. Use a different port on your Tightrope server by changing it in Internet Information Server. Instead of using port "`80`" for web access, you could use port "`8080`". See section M.11.2 on the next page, *Change Your Port Number* for information about how to do this.

M.10.3 Option 3: Use VPN

This is a limiting option because all of the public web features of Tightrope's system will be unusable, given that there is no anonymous access from the Internet to your Tightrope server. It is secure, however, because you are simply using the same VPN access that you would use for your regular network access. If your organization already uses VPN, you don't even need to involve your IT department.

M.10.4 The "Forget the IT Department" Option

Instead of fighting your network administrators, you may be able to buy an inexpensive connection of your own.

DSL or cable modem connection might cost you only 30 to 80 dollars per month and provide a method to access your computer from outside your network.

Using this method, you would access your system from your desk at work by going out on the Internet through your regular network and back into your building through the new connection that you purchased for your Tightrope System. You access your Tightrope servers as you would any other computer on the Internet.

The biggest limitation is that you cannot connect any machine within your building's network to any Tightrope server. For Carousel machines, this is not a significant limitation unless you are uploading large video files. For Cablecast installations with video servers, this is a problem because you will not be able to transfer video files into the server using Windows Networking.

Another consideration has to do with the type of Internet connection that you purchase. It is very common for cable companies to block certain ports on your network. Also, obtaining a static IP address is often difficult or expensive to accomplish.

For ways around these limitations, see the next section...

M.11 Avoiding The Tyranny of Cable Modem Providers

If you are on your own or find it impossible to put your Tightrope system on the Internet through your IT department, getting your own connection might be the best option.

When an organization wants to put out a web presence, they will purchase a connection that is designed for the task. Traditionally this has meant a T1 connection, which is very expensive.

A great alternative to a T1 is a DSL or cable modem connection, which can be had for less than 40 dollars per month, in some cases. Unfortunately, these connections are designed for consumers and as such lack static IP addresses. In some cases the Internet Service Provider (ISP) will even block incoming access to common ports, like TCP port 80, in an attempt to stop you from hosting web sites with your connection.

Sometimes your provider will have a business version of their services which will provide you with everything that you need to host a web site. If your ISP does not offer business class service or it is cost prohibitive, you have one last option.

Many Tightrope customers have a working relationship with their cable provider. The policies in place might be more applicable to high traffic sites than it is to your situation and you may be in a position to ask for some flexibility.

BEFORE YOU CONTINUE READING THIS SECTION:
Call your cable provider and ask them if the following steps are acceptable to them. You do not want to circumvent their policies only to suffer their wrath when you find they've canceled your account and you are facing possible legal action. Get any negotiated exceptions to their policies *in writing!*

Tightrope Media Systems does not condone nor advocate wanton violation of your ISP's acceptable use policies!

M.11.1 Dynamic DNS

The first order of business is figuring out how to find your Tightrope server from outside your network. To do this, you use a technology called Dynamic Domain Name Service (DDNS). DDNS providers offer the same services as DNS except that they are able to track your dynamic IP address using special software that you install on your Tightrope server. This service is generally very inexpensive.

The down side to this service is that if your IP address changes, your site may be down for a short period of time. This is because the software might not discover the switch right away.

To find a dynamic DNS service provider, simply 'Google' the term *dynamic DNS*. You'll find many from which to choose. :)

M.11.2 Change Your Port Number

Your ISP may choose to block incoming data packets on specific ports. You can get around this by changing the port on which your Tightrope system's web server is listening.

Step 1: Right-click on **My Computer** on your Tightrope server's desktop.

Step 2: Select **Manage**

Step 3: Expand the **Services and Applications** Branch. Expand the **Internet Information Services** and **Web Sites** branches.

Step 4: Right-click on **Default Web Site** and click properties. (figure M.4)

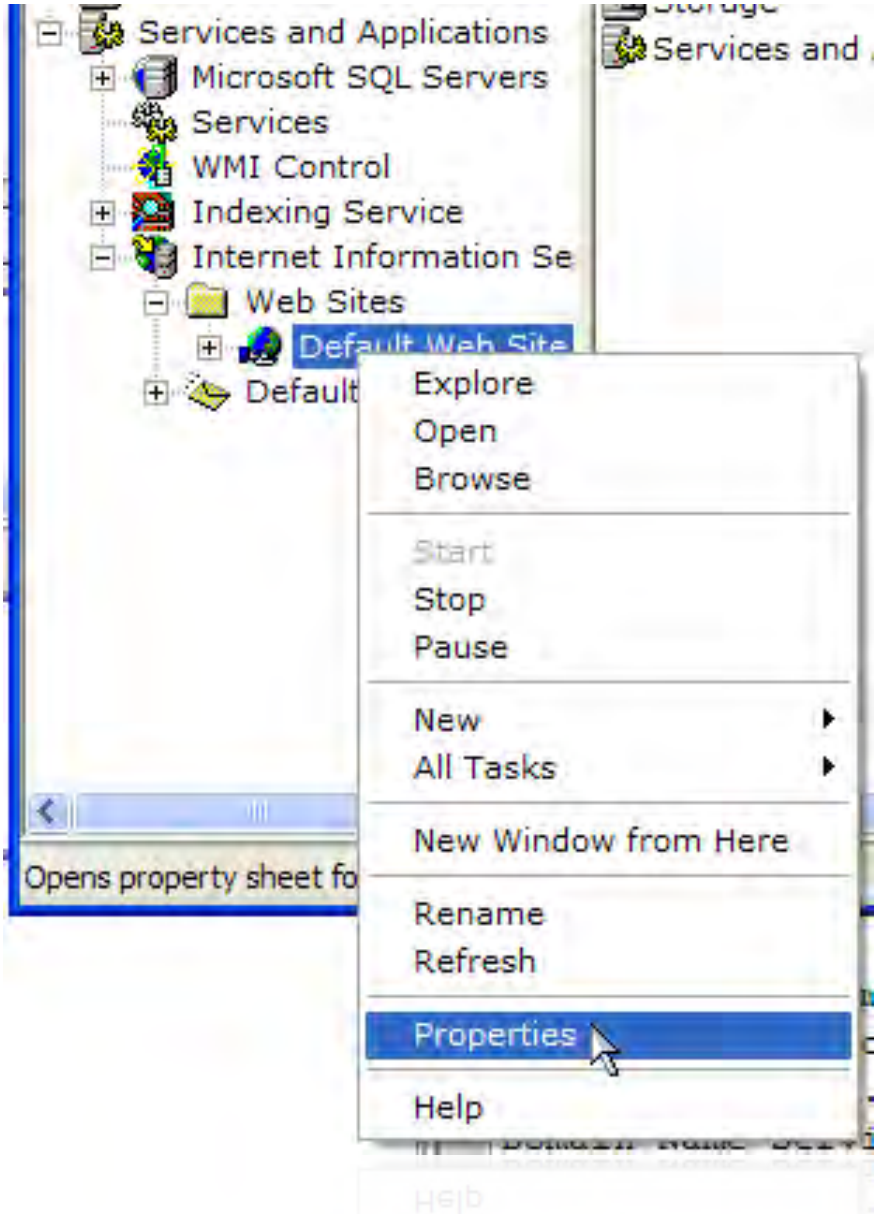


FIGURE M.4: Navigating to Internet Information Services

Step 5: Under the **Web Site** tab, find the **TCP Port** field (figure M.5 on the next page).

Step 6: Enter a port that is higher than 50,000. These are called *unregistered* or *user ports* and are unlikely to conflict with another application on your computer.

Step 7: When you access your Tightrope server, you will have to designate the port number by entering a ":" then the number after the address. Example: "`carousel.mydomain.org:8080`"

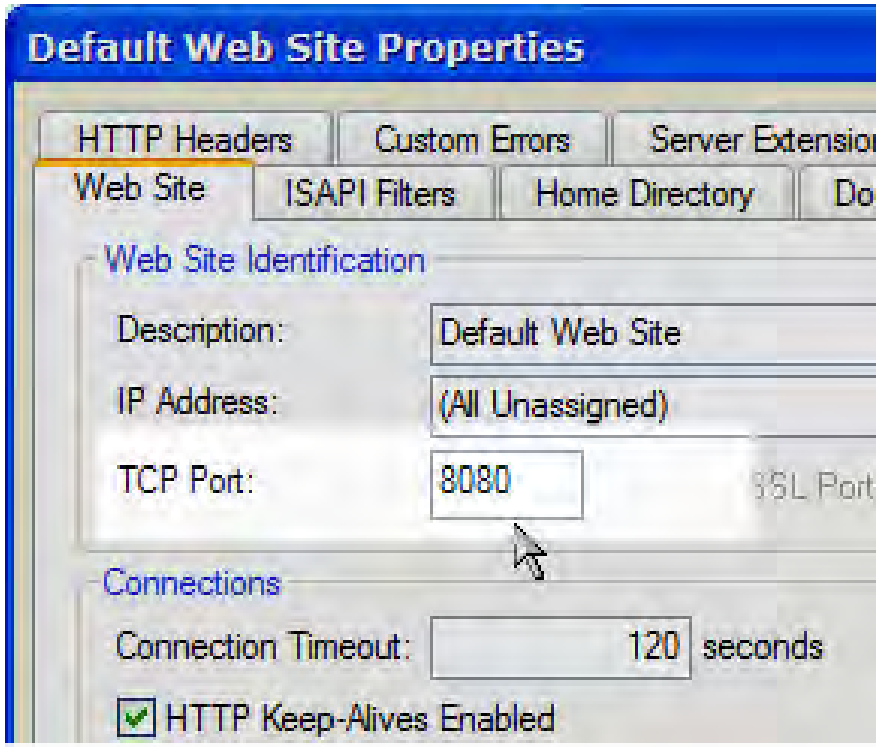


FIGURE M.5: Changing your port number.

or "`192.168.1.3:8080`".

M.12 Time Synchronization, UDP and NAT

We spent so much time talking about NAT, UDP and TCP in this guide because there are situations where you will want to use UDP through your router and will have problems doing so. The most common situation is where you want to synchronize a Tightrope server's clock to "Internet Time" using a service called Network Time Protocol (NTP).

NTP uses UDP port 123. Some organizations will have an NTP server running within their network and configuring a Tightrope server to use it is trivial. See *Front Door: The Manual* for details on how to accomplish this.

If there is no NTP service available, you will have to configure your router to forward all NTP traffic to your Tightrope server, or enable UDP-NAT Traversal, which is able to guess at the destination of incoming UDP packets based on recent outgoing traffic.

On inexpensive consumer cable modem routers, simple versions of UDP-NAT Traversal are often enabled by default. More expensive router/firewall/NAT combinations require some configuration.

M.13 Summary

In this paper we were able to cover quite a bit of ground. You should now have a basic grasp on the following concepts:

- IP addresses, subnet masks, routers and DNS
- DHCP and Dynamic IP addresses
- The difference between TCP and UDP and why it matters
- A basic understanding of network ports
- Understand private and public IP addresses
- Network Address Translation
- Firewalls and port forwarding
- Virtual Private Networking
- The various options for getting your system on the Internet

Appendix N Release History

Tightrope makes frequent revisions to Carousel. Below is a detailed list of those changes from the beginning of Carousel Release 6.

N.1 Carousel 6.4.0 Release Notes

New 7788 : **Bulletins that exist on other zones now have an indicator in the web interface** A list of other zones on which a bulletin exists now appears in the manage bulletin list.

New 7975 : **Queued dynamic bulletins are now rendered** Any dynamic bulletins that are queued will be rendered along with any current bulletins so that they are immediately available when their time comes.

New 7779 : **Webpage Snapshots now allow for a delay** When using a webpage snapshot, you can now set a number of seconds to delay before taking the snapshot, to allow script to load and render content.

New 7737 : **Proxy settings are now in the web interface** The Proxy settings for the service, web interface and players are now configured in Carousel, no longer in the scary config files.

New 7738 : **Add option to copy bulletin to template** Standard bulletins can now be promoted to being a ”my” or ”zone” template. Dynamic bulletins can be promoted to zone default templates.

New 7915 : **Web interface now shows errors for dynamic bulletins** The manage bulletin list now has a red or gray dot if a dynamic bulletin has an error or has no items that match.

New 7806 : **Native Facebook support** You can now put content from Facebook into Carousel.

New 3484 : **Character limit on Carousel bulletins** A template can now specify a character limit for a text block to prevent user or dynamic data from getting too long and keeping auto sized text from getting too small.

New 7721 : **Native Twitter support** No more messing with RSS, now you can put Twitter content directly into Carousel.

New 7765 : **Web interface shows preview for Clock bulletins** The full previews while editing clock bulletins now show and update the face of the clock, as configured. Also, the WebDisplay now will display the clock face as well.

N.2 Carousel 6.4.1 Release Notes

Bug 8022 : **Uploading large video files caused ”System out of memory” error** The video upload will now accept larger files

Bug 7783 : **Web Page Snapshots won’t display if you set too long of a delay** The timeout used for the snapshot will now take into account the specified delay

Bug 8002 : Unable to upload a picture to create a bulletin You can once again upload single images as bulletins

New 8047 : Updating sibling bulletins should show on the confirmation page The confirmation now shows a list of zones that the bulletin is shared with and whether or not they'll be updated when you proceed

Bug 7741 : Standard bulletins with WebPictureBlock errors won't show their errors Standard bulletins with WebPictureBlocks will now show a red dot and their error message if an error occurred when updating them

Bug 8037 : SQL 2012 create script incompatibility SQL Server 2012 can now create a new database on initial install. Previously, existing databases needed to be migrated over to SQL 2012.

N.3 Carousel 6.4.4 Release Notes

Bug 8192 : Copies to the same zone can repeat shared zone names Carousel no longer lists multiple copies of a bulletin on the same zone under the "shared on zone" list.

N.4 Carousel 6.4.5 Release Notes

Bug 8234 : Twitter and Facebook default templates will cause the "No blocks could fit on the current template" error The default templates have been updated to have proper default options on their content blocks.

Bug 8235 : RSS bulletins will give the following error: "Error: Specified argument was out of the range of valid values" The default templates have been updated to have proper default options on their content blocks.

Bug 8236 : Apostrophe in username can make Carousel display errors If your username had an apostrophe, certain areas, such as the 'my media' list, would display an error immediately.

N.5 Carousel 6.4.6 Release Notes

Bug 8238 : RSS Weather Crawls that err disappear Crawls no longer disappear when there is an error.

Bug 8282 : EventDisplay Bulletin that is set to show text when no event is scheduled does not render The correct text is shown when there is no content for an EventDisplay bulletin.

Bug 8249 : Special case block needs to exist to be used as a back drop New block type has been added that can be used as a backdrop that can be overlapped by other blocks.

Bug 8273 : Clone Tool: Imported Weather doesn't work Fixed a bug in the Clone tool that caused 6.4.5 weather bulletins to become corrupted during export.

Bug 8121 : CAP is using the old weekday trick, should use the new 'no content' status CAP now uses the correct method of handling a "no content" status.

Bug 8221 : Lots of tags can slow down system Significantly improved scalability of bulletin tags.

Bug 8222 : Error accessing proxy-migration.txt when server doesn't have access to root
A more useful error message is given if the service does not have rights to clean up the proxy-migration.txt file.

List of Figures

2.1 Monitor Varieties . . . 21
2.2 Channel Layout . . . 22

3.1 Multi Zone Example . . . 33
3.2 Photoshop Guides . . . 34

4.1 A comparison between the different available Carousel Player software types. . . . 35
4.2 Preferred export settings in Flip4Mac for Carousel videos. . . . 36

5.1 The rack rail that is screwed to the server. . . . 40
5.2 Hold the lever open and pull until the server's rail is separated from the rest of the rack rail. . . . 40
5.3 Separating the two rail components. The hand in this figure is holding the component that is screwed to the server. . . . 41
5.4 The middle mounting point is for the front of the rack rail. . . . 41
5.5 The L-bracket that you attach to the rack. . . . 42
5.6 The mounting bracket that you attach to the L-bracket . . . 42
5.7 This is what ground loop interference looks like. . . . 44
5.8 This is the TCP/IP settings dialog in Windows. . . . 46
5.9 Select the time zone that the server is in from the pop-down list and choose **OK**. . . . 47
5.10 The Carousel display engine configuration screen. . . . 48

6.1 The FrontDoor login . . . 51
6.2 A Carousel System that has not been set up . . . 52
6.3 The Carousel Main Menu . . . 52
6.4 The Status Bar . . . 53
6.5 Quick Links . . . 54
6.6 Selecting Zones with Pop-Down Menus . . . 55
6.7 Selecting Zones with the Tag Picker . . . 55
6.8 The Media Picker . . . 56
6.9 Selecting media with tags. . . . 57
6.10 Clearing a Tag . . . 57

7.1 Configure Main Menu . . . 59
7.2 Adding Zones . . . 60
7.3 The Zone Properties Page . . . 60
7.4 No Channels Defined . . . 62
7.5 The Channel Configuration Editing Menu . . . 62
7.6 The Channel Setup Form . . . 63
7.7 Adding full-screen alert zones to this channel. . . . 63
7.8 You can re-order the list by dragging and dropping the items. . . . 63
7.9 The Channel Layout Menu . . . 64
7.10 Zone Properties Form in Channel Layout . . . 65

7.11 A zone added to the preview . . . 65
7.12 The Crawl Settings Menu . . . 66
7.13 The Date and Time Menu . . . 67
7.14 Background Audio Form . . . 68
7.15 The channel list, with preview buttons. . . . 69
7.16 Example of the web-based channel preview. . . . 70

8.1 Closing the Display Engine before it loads . . . 71
8.2 The Display Engine Configuration Form . . . 72
8.3 Successful connection tests . . . 73
8.4 Connection tests with failures and possible solutions . . . 73
8.5 Player Status and Player Alerts . . . 76
8.6 Player Status list with some troubled players . . . 76
8.7 Player Status list with healthy players . . . 77
8.8 Adjusting the Player Alerts settings distribution list. . . . 78
8.9 Red Bar Mode . . . 78
8.10 The Carousel Display Engine loading zones . . . 79
8.11 Selecting Clone Mode . . . 80
8.12 The NView TV Output dialog box. . . . 81
8.13 The ConvertDVI Control Panel . . . 83
8.14 Select *Display Properties* from the player's desktop . . . 84
8.15 Loading the Display Properties Dialog . . . 85
8.16 The nVidia Advanced Menu . . . 86
8.17 Adding a Resolution . . . 86
8.18 Rotating the display . . . 87

10.1 Email Approval List . . . 91
10.2 Bulletin Pacing Form . . . 93
10.3 The Bumper Graphic Form . . . 93

11.1 The Zone Synchronization Menu . . . 95
11.2 The zone picker. . . . 96
11.3 The external data source authentication menu . . . 97
11.4 The proxy configuration menu . . . 98

13.1 Picking a Template . . . 104
13.2 The Edit Bulletins Form . . . 104
13.3 Adding HTML tags to some bulletin text . . . 105
13.4 Example of HTML tags in action . . . 105
13.5 The Quick Edit Palette . . . 106
13.6 Scheduling Bulletins . . . 107
13.7 The Bulletin Properties Form . . . 109
13.8 Viewing Bulletin Impression statistics . . . 110
13.9 Choosing a sound . . . 110
13.10 Existing tags will appear as you type . . . 111
13.11 Adding four bulletin tags at once . . . 111
13.12 Deleteing a bulletin tag . . . 111
13.13 Adding Another Bulletin . . . 112
13.14 Selecting the bulletin type. . . . 112
13.15 Sending bulletins to multiple zones using the zone list. . . . 113
13.16 Sending bulletins to multiple zones using the zone picker. . . . 114
13.17 Bulletin Confirmation . . . 114

14.1 Example Crawl (Free 'kudos' if you name the band that wrote these lyrics.) . . . 115
14.2 Choosing a Crawl Zone . . . 115
14.3 Making a Crawl Bulletin . . . 116

16.1 Uploading a picture or video . . . 120
16.2 Flash Bulletin Properties . . . 122
16.3 Insert a background in Flash to avoid a black background. . . . 122
16.4 Bulletin Upload Confirmation . . . 124

17.1 Analog Clock Properties . . . 126
17.2 Analog Clock Properties . . . 127
17.3 Analog Clock Properties . . . 128
17.4 Choosing the location for weather information . . . 129
17.5 The Weather Templates . . . 130
17.6 The Default Weather Template . . . 131
17.7 Some of the data fields that are available for use . . . 132
17.8 Weather crawl options . . . 133
17.9 Previewing the weather crawl . . . 134
17.10 Selecting a Cable Display Bulletin Type . . . 134
17.11 Cable Display Bulletin Properties . . . 137
17.12 Editing Cable Display Bulletins . . . 139
17.13 Editing the RSS properties . . . 141
17.14 Editing an RSS Bulletin . . . 143
17.15 RSS Bulletin Example . . . 144
17.16 The error message seen when trying to read an invalid RSS or Atom feed. . . . 144
17.17 Checking the Web Interface to see if the RSS feed has updated. . . . 145
17.18 RSS Crawl Creation . . . 146
17.19 The RSS Crawl Properties Form . . . 146
17.20 Editing Twitter properties . . . 147
17.21 Editing Facebook properties . . . 149
17.22 EDS bulletin creation . . . 150
17.23 Selecting a Database for EDS . . . 151
17.24 The EMS and Ad Astra Bulletin Properties Form . . . 151
17.25 An example configuration for Resource25 . . . 154
17.26 Here we are restricting the space to a specific ID number. . . . 154
17.27 In this screen shot, there are no calendars, but you can see that this is what setting up an Exchange server within carousel looks like. . . 155
17.28 EDS Properties . . . 156
17.29 Editing an EDS Bulletin . . . 157
17.30 An Example of an EDS Bulletin . . . 157
17.31 The Event Schedule Form . . . 158
17.32 The EDS Calendar Tool . . . 159
17.33 The Live Video Form . . . 160
17.34 Live video bulletin creation . . . 160
17.35 Interactive bulletin options . . . 161
17.36 Dynamic bulletin error on main menu . . . 162
17.37 Dynamic bulletin with no items to render . . . 162
17.38 Dynamic bulletin without authorization . . . 163

18.1 A List of Bulletins . . . 168

18.2 Filtering by tags . . . 169
18.3 Select two tags by shift-clicking . . . 169
18.4 Bulletin Groups . . . 170
18.5 Moving a Bulletin In a List . . . 171
18.6 Dragging a Bulletin In a List . . . 171
18.7 Move/Copy Bulletins Form . . . 172
18.8 A Bulletin is Waiting for Approval . . . 173
18.9 Waiting Bulletin Email . . . 173
18.10 The Waiting Bulletins List . . . 174
18.11 The Housekeeping Menu . . . 174
18.12 Bulletin Reporting . . . 175
18.13 The Slide Show . . . 177

19.1 The My and Zone Tabs . . . 180
19.2 Alpha Channel Example . . . 181
19.3 A List of Backgrounds . . . 182
19.4 An Item in a Media Asset List . . . 183
19.5 The Buttons at the Bottom of a Media Asset List . . . 183
19.6 Adding a Tag . . . 184
19.7 Copying a Media Asset . . . 185
19.8 The Properties Form of A Media Asset . . . 186
19.9 Bulletin Made from Template . . . 187
19.10 The yellow outline is around a *simple rectangle* block. In this case, the box is surrounding multiple text fields. . . . 188
19.11 Making a New Template . . . 189
19.12 Dragging a block . . . 191
19.13 Resizing a block in the preview window. . . . 192
19.14 Font controls . . . 194
19.15 Text Alignment controls . . . 194
19.16 Text Gradient controls . . . 195
19.17 The Block Reflection controls . . . 196
19.18 A reflection example. . . . 196
19.19 The reflection collides with the picture . . . 196
19.20 In **Block Reflection**, an offset of "72" pixels was added to take away the collision. . . . 197
19.21 Add luminance to the color in order to see a change when you select a new hue. . . . 197
19.22 Picture block properties . . . 198
19.23 The logo on the left has **Maintain aspect ratio** deselected. . . . 198
19.24 Web picture address . . . 198
19.25 Carousel logo has a higher z-order . . . 199
19.26 Carousel logo has a lower z-order . . . 199
19.27 Changing the z-order of blocks . . . 199
19.28 **Bring to Front** and **Bring to Back** in **Block Options** properties . . . 200
19.29 **Repeat blocks** pop-down list in **Block Options** properties . . . 200
19.30 The Media Tags List . . . 201
19.31 The *Add Seamless Background* form. . . . 202
19.32 Splitting a background . . . 203
19.33 Uploading Media Packages . . . 203

20.1 The Extras Form . . . 205
20.2 The Public Website . . . 206

21.1 RDA Diagram 210

C.1 Selecting a template with a Web Picture block 247
C.2 A bulletin with a Web Picture block 248
C.3 Enter the URL of the page you'd like to include in the bulletin, and enter a delay if needed 248
C.4 Crop the page as needed 248
C.5 The final result 249

E.1 The Template Editor Form 255
E.2 Naming a Template 256
E.3 Template Field Size Example 256
E.4 The Position and Size Tools 257
E.5 Text Editing Properties 257
E.6 Editing the Backdrop and Outline 258
E.7 Template Editor's Preview Window 258

G.1 Saving a presentation as a list of PNG files 263
G.2 Have it save every slide 264
G.3 Make the folder into a ZIP file 264
G.4 Importing a zip file as a bulletin package 264
G.5 *Upload Bulletin Package Confirmation* form. **Save To Group** is a nice way to organize your PowerPoint presentation within Carousel 265
G.6 The presentation imported as a group 265

H.1 Configuration Window 268
H.2 Schedule Window 269

I.1 The Hauppauge hardware 271
I.2 The TVI Driver Installer 272
I.3 Installing the drivers 272
I.4 Installation has finished 273
I.5 Configuring the Display Engine 273
I.6 The TVOne hardware 274
I.7 Configuring the Display Engine 275
I.8 Configuring the Display Engine 276

J.1 Server Manager in the **Roles** snap-in 277
J.2 Adding ASP.NET 278
J.3 Adding *.NET Framework 3.5.1* 279
J.4 Server Manager 279
J.5 Turning off IE Enhanced Security for Administrators 280
J.6 Application Pools on your server in *Server Manager* 286
J.7 Selecting "`LocalSystem`" in **Built-in account** 287
J.8 The *Default Web Site* 288
J.9 Selecting "`ASP.NET v4.0 Classic`" 288
J.10 The path to your TRMS installation 289
J.11 Carousel's Media Directory 293
J.12 Moving Media to a new share. 293
J.13 ASP.NET Machine Account needs access to the Media directory . 294
J.14 An example of the *.config* files being changed. 295
J.15 Bouncing the Carousel Service 296
J.16 Creating the virtual directory 296

J.17 Naming the virtual directory 297
J.18 Typing the path to the virtual directory 297
J.19 Testing the remote Media storage in Carousel 298

L.1 Disabling the Bumper Page 303
L.2 No Zones Defined Error 304

M.1 A Network Domain Tree 309
M.2 Network Address Translation 314
M.3 Port Forwarding 316
M.4 Navigating to Internet Information Services 320
M.5 Changing your port number. 321